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The Milroy Lectures
ON
ANKYLOSTOMA INFECTION.

Delivered before the Royal College of Physicians of London on March 2nd, 7th, and 9th, 1911,

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LECTURER ON PATHOLOGY, GUY'S HOSPITAL.

LECTURE I.

Delivered on March 2nd.

MR. PRESIDENT AND GENTLEMEN,—Taking the world as a whole, with the possible exception of the malarial organisms, ankylostoma is, I suppose, responsible for more unhappiness and inefficiency than any other parasite, and, for the most part indirectly, for no inconsiderable number of deaths. Practically all tropical countries are permeated with the worm, and in places where the conditions for its propagation are not unfavourable it may reduce four-fifths of the population to a continual state of chronic ill-health which is only terminated by their premature decease, commonly from some secondary affection. Under circumstances where the prevailing conditions are more or less inhibitory, though most people may be infected, yet in relatively few is the dose of parasite so big or the resistance of the host so small that any demonstrable illness is produced. An individual in whose bowels ankylostoma is living and whose tisssues are shown to be reacting to its presence by changes in the bone marrow, may be said to be infected with ankylostoma in the true sense. But if there are no subjective or objective signs of illness one cannot reasonably say that he is suffering from the disease ankylostomiasis. It is necessary, therefore, to distinguish between cases of ankylostoma infection without illness and cases of ankylostomiasis as sharply as the fact that the one must grade imperceptibly into the other will allow; and to recognise that the latter comprise a variable, and often very small, proportion of the total number of infected individuals.

From the point of view of preventive medicine the worm carrier, owing to his mobility and the fact that his appearance and habits excite no apprehension, is in many ways a more important person than the sick man who is laid by the heels with his anæmia and dyspnœa. I have, therefore, taken "Ankylostoma Infection" as the title of these lectures rather than "ankylostomiasis," and by the latter term I shall refer only to illness due to ankylostoma. We have, unfortunately, no convenient terminology in current use denoting the distinction between "Wurmträger" and "Wurmkranken," "ankylostomés" and "ankylostomiasiques."

In this country ankylostoma is restricted to a very small area—the underground workings of the metalliferous mines in Cornwall; and the persons exposed to infection number in all only some 6000. There is no clear record that any death there has been due to uncomplicated ankylostomiasis. It may therefore well seem presumptuous on my part, whose only personal experience of the parasite has been in Cornwall, to attempt to deal with an infection which, as I have already indicated, attains dimensions of massive importance in the tropics. As a matter of fact, however, the segregation of the saprophytic phase of the parasite to a special and restricted area, and the fact that only a limited proportion of the population is exposed to the possibility of infection, afford opportunities for the study of many of the questions involved which cannot be obtained where infection is intensive and generally disseminated both on the earth and in the people. In the tin-mines of Cornwall, and the coal-mines of Northern France, Belgium, and Westphalia, ankylostoma is confined to subterranean workings, and only those who work in mines run the risk of being infected. The surface in the neighbourhood is, *quâ* ankylostoma, sterile, and the general population live free from infection. In most respects these are the ideal conditions which one would desire to lay down in any experimental inquiry into an epidemic infection; they are seldom realised so satisfactorily in the natural history of disease.

In reference to the personal observations which we have made in Cornwall and in connexion with Cornish cases of ankylostoma infection[1] it should be understood, though their names are not always mentioned, that whatever of interest has come out of these inquiries is mostly due to Dr. J. S. Haldane, reader in physiology in the University of Oxford, and Mr. R. A. Thomas, manager of Dolcoath Mine. To a somewhat less, but by no means small degree, these investigations have been assisted also by Dr. S. G. Scott and Professor J. Cadman.

THE LIFE-HISTORY OF ANKYLOSTOMA.

The life-history of ankylostoma seems to be now satisfactorily established. The adult worms, male and female, live in the small intestine of man. They eat away at the mucous membrane to which they are attached, with their heads buried more or less deeply into the mucosa and sometimes the submucous tissue. The eggs are laid here in prodigious numbers, and pass out of the human body to begin the saprophytic stage of their existence in the stools. As seen in the ordinary sample of fresh fæces which has been outside the body for several hours, the eggs have generally divided once or twice, so that two or four cells are visible within the transparent shell; unsegmented eggs are not uncommon. Under favourable circumstances development proceeds rapidly through a morula stage to a little worm which hatches out in one or two days; if conditions are unsuitable this period may be prolonged to a week or ten days or even several weeks. The larval worm, after escaping from the eggs, continues its rapid development, moults three or four times,[2] and in four to ten days, according to circumstances, reaches a definite stage—the full grown larva. At this point it is an individual, without any sexual differentiation, about 0·6 mm. long, and is provided with a stout chitinous[3] sheath, inside which it can move about pretty freely. Hence the term "encapsuled larva." Unless it has an opportunity of becoming parasitic no further growth takes place and the full grown larva will continue its saprophytic phase without any further alteration for at least many months. If, on the other hand, it gains entrance to the human body, further progress is made, sexual differentiation becomes manifest, and in about six or seven weeks the adult worm is living in the small intestine.

In the life-history of all parasites it is important to know at what stage or stages multiplication of individuals takes place, and especially whether any increase occurs during any saprophytic phase. For it is clear that it is better worth while to plan one's attack, if any direct attack is desirable, upon the multiplying rather than upon the resting stage. In the case of ankylostoma there is, I think, no doubt that there is no multiplication except during the parasitic phase. The view—first propounded by Giles in his admirable study of kala-azar, and subsequently supported from time to time by various other observers—that ankylostoma larvæ may become sexually mature, and reproduce themselves outside the body, seems to be founded on erroneous observations. Those who have supported the theory of heterogenesis have not sufficiently appreciated the extraordinary prevalence of small nematode worms throughout nature, not parasitic—as far, at any rate, as the higher mammals are concerned, though some of them appear to have important pathogenic relations to plants. Many of them have larvæ which are indistinguishable from those of ankylostoma, especially when in their earlier stages, and on superficial examination their eggs are very similar, though, as far as my experience goes, generally distinguishable on careful comparison. Such nematodes may be found anywhere; they are particularly abundant in fæces which have been lying on the ground in hot moist places, such as mines, where ankylostoma is prevalent. In examining such fæces immediately after

[1] The literature will be found in the Journal of Hygiene, vol. iii. (1903), p. 95; vol. iv. (1904), pp. 73, 437; vol. v. (1905), p. 230; and vol. ix. (1909), p. 264. And in Parliamentary Papers, Cd. 1318, 1902; 1843, 1903; 2066, 1904; 2091. 1904; 4820, 1909.

[2] I do not suppose the number of moults is indefinite or immaterial, but I do not know exactly how many there are. My own observations indicate at least three.

[3] The hard parts of the skin of such animals are commonly described as "chitinous," but not necessarily in all cases in any more precise sense than that in which strong soap solutions or silicic acid are called "gelatinous." Bondouy (Archives de Parasitologie, vol. xiv. (1910), p. 1), at any rate, has shown that the skin of the horse strongyle (*Sclerostoma equinum*) does not consist of chitin—i.e., does not yield glucosamin on decomposition.

collection, and from time to time after subsequent incubation, sexual forms, and then a fresh generation of eggs and larvæ, will often be found; this occurrence is liable to be the more misleading if the fæces are derived from a person infected with ankylostoma, and are found to contain eggs and larvæ which resemble, and in many cases doubtless really are, those of the human parasite.

I have made many attempts to observe the development of sexual forms in cultures of fæces from infected persons, taking care not to introduce any obvious source of contamination, such as earth or the like, and keeping the cultures under aerobic and anaerobic conditions, and with various food materials in different amounts, but in every case without success. The admixture of a little garden earth will often result in the appearance of worms which proceed to become sexual and multiply. Even if occasionally sexual reproduction were observed in fæces which had been effectually protected from contamination, as Ozzard[4] and others appear to have done, I confess that I should interpret the phenomenon as being due to the person having swallowed the eggs of some of the free-living nematodes. Considering the degree to which these animals infest all nature, it seems likely that man must from time to time ingest them or their eggs in fair numbers. Leiper[5] has lately recorded a remarkable instance in which these deceptive little worms appeared in an old laboratory jar.

Apart from the question of heterogenesis, these considerations indicate that one must be extremely cautious in identifying any nematode larvæ which may be found loose in the world as being those of ankylostoma; one cannot, for instance, obtain any evidence as to the infectivity of a place by observations on the prevalence of such larvæ. The only test that I know of which will help to identify ankylostoma larvæ from others which are morphologically closely similar is to keep them under observation and see that no sexual differentiation occurs.

The nematode *Strongyloides intestinalis* is often found along with ankylostoma; one or two cases were seen in Cornwall. The eggs of the sexual parasitic generation (*Anguillula intestinalis*) hatch inside the body and pass out in the fæces as larvæ, which give rise to a sexual saprophytic generation (*A. stercoralis*). It is possible that this has been sometimes mistaken for a sexual saprophytic phase of ankylostoma.

MODES OF INFECTION.

Up to 1898 it had always been assumed that the only path of entrance of ankylostoma in the human body was the mouth and alimentary canal. Looss,[6] however, then suggested that infection might take place through the skin, afterwards showing that larvæ could penetrate human skin, producing a local reaction, and that men and dogs could acquire the disease by the cutaneous route. Experiments made on man by C. A. Smith, Pieri, Herman, Bruns, Tenholt, and others confirmed these observations. Personally I produced an infection in Professor J. B. Leathes by applying a few full-grown larvæ to the skin of his forearm for a couple of hours. There were a slight local reaction and some itching. As he wrote to me, "σκωληκόβρωτος ἐγιγνόμην," but in the sequel he did better than Herod, and had no symptoms of illness, though definite signs of infection in the form of an increase of eosinophile leucocytes appeared four weeks later; eggs were found in the stools after 50 days. This experiment is, I think, particularly conclusive, since Leathes was at the time working in a chemical laboratory in London, and had never been exposed to any possibility of natural infection. The larvæ used for the experiment were a single batch bred for the purpose from infected fæces in another part of the building with which Leathes had no contact. In the building itself no other ankylostoma material had ever been dealt with.

Of the possibility of larvæ passing through the skin, and ultimately reaching the bowel, there is therefore no doubt. There are also reasons to believe that this is, in nature, by far the most important method of infection. The local reaction due to the larvæ themselves is variable, erythema and urticaria, sometimes hardly perceptible, but though there may not be much to see there is generally a good deal of itching. Scratching and secondary infections from the dirt which accompanies the larvæ often result in the appearance of furuncles, which are such as impress themselves on the subject's memory. Hence the "ground itch" or "coolie itch" of Assam, the "mazamorra" of Porto Rico, the "bunches" of Cornwall. The Cornish miners knew long ago that the agent which lived in Dalcoath Mine, and ultimately led to anæmia, was also the cause of their skin troubles; they were perfectly clear that "bunches" preceded shortness of breath and that the two had some etiological connexion, and produced cogent topographical evidence that one did not occur without the other. I am free to confess that for my own part, having failed to infect myself through the skin, I neglected their epidemiological evidence and was not very much interested in the long tales they had to tell of how they had scratched themselves all night after working in particular parts of the mine, and later on became short of breath. But they evidently knew more about it than I did, and I have often wondered since how many lessons the general consensus of popular opinion has to teach experimental parasitologists.

The obvious difficulties in the way of mouth infection with the stale remnants of human fæces raise the possibility of ingestion being able to give rise to an infection as widespread as that which obtains with ankylostoma under favourable circumstances, where 95 per cent. of the population may harbour the worm. There do not, however, seem to be any conclusive reasons for doubting the importance of mouth infection on this score. Infection with ascaris and trichocephalus certainly takes place by the mouth, since the eggs do not hatch outside the body. All Chinamen are said to have trichocephalus and 70 per cent. of the patients in Paris hospitals[7]; it occurs in as many as 8 per cent. of the random patients in Guy's Hospital,[8] a fact which shows that even in and about London people must swallow the remnants of human fæces more frequently than a consideration of their habits and sanitary circumstances would suggest. Ascaris is rare enough in this country, but occurs in half the agricultural population in Switzerland,[9] and freely in most tropical countries. Of Cornish tin-miners four-fifths have trichocephalus and a quarter ascaris, the frequency of infection with ankylostoma varying from 10 to 90 per cent.

It seems almost impossible that mouth infection among civilised persons should be so frequent, but the facts do not seem capable of any other interpretation. On the other hand, it seems unlikely that the severity of ankylostoma infection, and especially the frequency of reinfection, are compatible with the hypothesis that all the worms are swallowed as larvæ. There is no parallel in bacterial infections, since these can multiply in the body, whereas one ankylostoma larva cannot, if swallowed, give rise to more than one adult worm in the intestines. Most infections with trichocephalus and ascaris seen in this country are slight; but, as in hot countries where the segregation of fæces is imperfect, in Cornish miners some very heavy infections are seen.

In Cornwall, in Porto Rico, and in other places where inquiry has been made, with Egypt as a marked exception, nearly all cases of ankylostoma infection give a history of a skin eruption, characteristically associated with excessive itching in its early stages and often occurring in repeated attacks. Those who fail to recollect any such incident cannot be considered as necessarily examples of mouth infection, since it is known experimentally that the local changes at the point of entrance may be very slight, especially if secondary infections are avoided. But though the skin is doubtless the usual and the important path of entry, there are no reasons for doubting the possibility of mouth infection. Leichtenstern showed that infection follows after swallowing adult larvæ, and I was myself infected in this way through an accident with a pipette. The work of Looss on dogs and of Schaudinn on monkeys has shown that larvæ penetrating the skin get into the veins and ultimately lodge in the lungs, whence they pass up the trachea and down the œsophagus to their definitive home. Some such sojourn in the tissues may be necessary for development; if so, it may be presumed that larvæ which are swallowed escape from the upper part of the alimentary canal and then go through much the same course as those which enter through the skin. But at present there is no

[4] Brit. Med. Jour., vol. ii., 1909, p. 779.
[5] Ibid., vol. ii., 1909, p. 1332.
[6] See Zeitschrift für Klinische Medizin, Band lviii., 1906.
[7] Chantemesse and Rodriguez: Bulletin de l'Académie de Médecine, vol. lix., 1908, p. 407.
[8] Journal of Hygiene, vol. v., 1905, p. 274.
[9] Galli Valerio: Centralblatt für Bakteriologie, Orig., Band xliv., 1907, p. 531.

evidence showing that this is the case, and that larvæ when swallowed do not go on straight into the bowel.

Experimental skin infection is not always successful. Pieri, Grassi, and Galli-Valerio, for example, had several failures. I tried repeatedly to infect myself in this way, but with no success, using both cultures containing many adult larvæ and infected fæces obtained in Dolcoath Mine.

Ankylostoma can only gain an effective entrance to the human body in the stage of the full-grown larvæ. Eggs or young larvæ are not infective when swallowed, nor can they pass through the skin. The full-grown larva, with its protective capsule, develops a perfect passion for going through small holes. If water containing such larvæ is filtered through ordinary filter-paper most of them are found in the filtrate. I do not think anyone has ever determined what happens if adult worms are swallowed. Their fate is of no practical importance. The fact that eggs and young larvæ are not infective is, however, most significant, since it means that the fæces of an infected person do not become infective till after the lapse of at least four days, and an individual cannot re-infect himself by immediate contamination as appears to occur with oxyuris.

DURATION OF INFECTIVITY.

The time-relations of the various stages of development require some notice. From the fresh egg to the full-grown larva may take as little as four days or as long as a couple of months, according to circumstances, the chief factor being temperature. The full-grown encapsuled larva has a moderate natural death-rate when kept under artificial conditions in the laboratory, but out of a good brew a great many are alive at the end of 12 or 15 months, as Looss, Oliver,[10] and I have found, and I daresay would survive a good deal longer. It is a fair assumption that in nature they may live two or three years. This is the less remarkable when we consider that they do not grow or reproduce themselves, and hence have a low metabolism and require very little food. From the time when adult larvæ get into the body till eggs can be found in the stool varies between six and ten weeks,[11] and seems to be the same whether the larvæ are swallowed or get in through the skin. Lambinet[12] showed with dogs that the period was the same whether the larvæ of the dog ankylostoma (*A. caninum*) were applied to the skin, injected subcutaneously, or swallowed.

The duration of life of the adult worm is, no doubt, liable to much variation. In countries infested with the disease opportunities for reinfection are so numerous that it is difficult to obtain satisfactory data. It must also be remembered that recovery from ankylostomiasis by no means necessarily means that the individual is no longer infected. In Cornwall circumstances are better arranged, for there is no chance of reinfection unless the underground workings of the mines are visited. A good many men, after becoming ill with the disease, have abandoned mining altogether. In three such cases we found eggs in the fæces six, four, and four years respectively after the last possible exposure to infection; two of the men were quite well, one was still anæmic. In a good many cases the worms die out in a year or two, or, at any rate, become so few in number that ordinary routine examination fails to find any eggs in the fæces. The recent observations of Bruns, to which I shall refer later, show that the difficulties of accurate diagnosis under these circumstances are considerable. Stiles[13] examined children in the Charleston Orphan Asylum, where infection could almost certainly be excluded, and found that three were still infected after six years' residence. Ashford,[14] in Porto Rico, in a similar institution found, among 45 girls, four who were infected after four years.

Taking the whole saprophytic and parasitic cycle together, the time from the first infection of one individual to the establishment of an infection derived from him in a second person may vary from seven weeks to at least six years. The recipient of infection does not himself become infective for about seven weeks. An infected place may become infective four days after eggs have been deposited there, and may remain infective for at least a year.

[10] THE LANCET, vol. i., 1910, p. 356.

[11] Looss, 71 days; Pieri, 70 days; Smith, 45 days; Bruns, 46 and 53 days; Boycott, 50 and 55 days.

[12] Bulletin de l'Académie Royale de Médecine de Belgique, Jan. 23th, 1905.

[13] Public Health and Marine Hospital Service, U.S.A., Bulletin 10, 1903, p. 58.

[14] Anæmia in Porto Rico, 1904, p. 51.

THE TWO CAUSATIVE ORGANISMS.

From the parasitological point of view, the specificity of the causative organism constitutes an integral part of the conception of the individuality of an infective disease; the medical mind pays attention rather to the congeries of symptoms; while to the epidemiological sense the circumstances which condition prevalence in place and time more particularly appeal. The classification and nomenclature of diseases must necessarily vary with the particular trend of the systematist concerned; the real difficulty obviously begins when a compromise has to be made between the different principles which I have indicated without diverting an undue amount of time and trouble into the barren fields of terminology. With complete knowledge the parasitologist, the physician, and the epidemiologist will, no doubt, all find their lines of thought in harmony, but meanwhile one has to recognise that there is some inconsistency in having one disease, ankylostomiasis, which may be caused by either or both of two parasites which are specifically or, as some would have it, even generically distinct. In 1902 Ashford and Stiles showed that most of the ankylostomiasis in the southern regions of the United States and in Porto Rico was not due to *Ankylostoma duodenale*, but to a hitherto unrecognised species, *Ankylostoma* (*Necator*, *Uncinaria*) *americanum*. *A. americanum* is distinct enough from *A. duodenale*: the worms themselves are smaller, the eggs rather longer and narrower, the mouth has no recurved hooks, and the genital armature of the male is different. Since its original discovery it has been found in all parts of the world. If sufficient search were made it is pretty certain that both species would be found everywhere that ankylostomiasis is prevalent. On general grounds one would surmise that in any given locality one of the two species is probably autochthonous, and that the other has been introduced. *A. americanum* has not been identified in Cornwall, probably because comparatively few adult worms have been collected for detailed examination. Where both species are abundant individuals are often doubly infected; thus in Panama Whipple,[15] in 273 necropsies, found 39 with *A. duodenale* alone, 49 with *A. americanum* alone, and 25 with both. As far as is known, there is no clinical variation in cases of ankylostomiasis which can be correlated with the causative species of parasite. It is possible that the extraordinary divergence of the experience of different observers on certain points—the presence and abundance of blood in the stools, the relative efficacy of various anthelmintics, and so on—would be explained by taking into consideration this question of species. So far, however, no one seems to have started from the point of view that duodenaliasis should be distinguished from americaniasis. The term uncinariasis which is in use in America was born of the zoological passion for antiquarian research; it does not signify a specific infection with *Uncinaria americana*, but is synonymous with ankylostomiasis. In passing, one can only express one's relief that no organised attempt has been made to apply the law of priority to the nomenclature of disease.

Both species are restricted to man and probably the higher apes; experimental infections have been achieved occasionally in monkeys, and, as far as the earlier stages are concerned, in dogs and guinea-pigs. Other animals have ankylostomes of their own; dogs, cattle, sheep, seals have each their own species, none of which are naturally infective for man. Other parasitic nematodes (strongyles), which are widely distributed in domestic and other animals, have eggs which on casual inspection resemble those of ankylostoma; hence the notion that man might contract the infection from horses, and the statement lately printed in a reputable journal that the human parasite occurs in hens and other domestic animals.[16]

THE SYMPTOMS OF ANKYLOSTOMA INFECTION AND ANKYLOSTOMIASIS.

The skin symptoms associated with ankylostoma infection are of two kinds. 1. Resulting from the irritation caused by the larvæ penetrating the skin, there may be a local erythema or urticaria, varying greatly in severity in different cases, and often, from secondary infections, going on to pustules and furuncles. It may be that the organisms causing these secondary infections—in the cases I have examined they were

[15] American Journal of the Medical Sciences, vol. cxxxviii. (1909), p. 40.

[16] Journal of Tropical Medicine, vol. xii., 1909, p. 333.

staphylococci—are actually carried into the subcutaneous tissues on the larvæ; this is the less probable if, as is stated, the larvæ leave their outer skins behind them when they penetrate the hair follicles. 2. At any time after infection, sometimes months or years after the subject has been removed from any chance of a fresh invasion, attacks of generalised urticaria may occur, as with hydatids and *Filaria medinensis;* in other cases a general pruritus, without any local changes, causes a good deal of trouble.

During the first few weeks after infection there may be a slight bronchial catarrh and trivial pains in the upper part of the abdomen which bear no relation to the taking of food. These symptoms are no doubt due to the worms passing through the lungs in the course of their development, and to the irritation which they cause when they first reach the bowel. Manouvriez, describing the anæmia of coal-miners in France in 1878 without any idea that it was a parasitic disease, draws attention to the regular occurrence of urticaria and boils, and notes that a bad attack is generally accompanied by bronchitis (*catarrhe des gourmes*). Leathes also noticed a slight catarrh soon after his experimental infection.

These symptoms in the skin, lungs, and bowels may be very slight and may easily escape notice, so that an infection may readily become established without attracting the recipient's attention. In a certain number of cases, however, the individual becomes anæmic, and the severe symptoms which constitute the disease ankylostomiasis supervene. Various writers have described symptoms in ankylostomiasis which are not due to the anæmia, but represent, in their opinion, a direct toxic action of some product of the worm on the economy. Siccardi [17] has recently strongly urged that some such explanation is required for the occurrence of nervous symptoms (easy cerebral and muscular fatigue, apathy, melancholia, amblyopia with a central scotoma) in infected persons who are not anæmic. As a rule, however, these symptoms are not prominent, and are overshadowed by the dyspnœa, dyspepsia, and general upset of all the organs of the body, which may reasonably be ascribed to the anæmia. That a toxic substance is absorbed into the body is, however, clearly shown by the occurrence of urticaria and by the almost constant response of the eosinophile leucocytes in the bone marrow.

The incidence of anæmia in infected persons appears to be determined by three factors—individual susceptibility, dose of infection, and frequency of infection. It is significant that the proportion of infected persons who are anæmic is in general parallel with the proportion of the whole population who are infected, especially in the sense that severe anæmia is seldom found unless the infection is very prevalent. Thus in Cornwall, in Dolcoath Mine, 95 per cent. of all underground hands were infected, and about 5 per cent. of those infected were ill to a material degree; in Grenville 15 per cent. and in Tincroft mine 10 per cent. were infected, and there was only a single case of illness in 800 men. In the Belgian coalfield 4 per cent. of the men are now infected, and cases of severe anæmia are unknown. In Porto Rico, on the other hand, where the whole agricultural population was infected, about half had less than 50 per cent. hæmoglobin, and suffered from a severe grade of the disease.

If, then, the prevalence of infection is slight, the incidence and severity of illness will be correspondingly low.[18] This relation does not necessarily hold for bacterial infection, where the infective agent can multiply inside the body. With ankylostoma this, of course, does not occur, and the evident connexion between prevalence and severity points clearly to the quantity of infection being an important factor in determining illness and correspondingly reduces the significance of individual susceptibility. Abundant contact with larvæ means, as a rule, that most people will be infected, that the proportion who receive large doses will be considerable, and that frequent reinfection will occur. It is difficult to separate the two last factors, for each reinfection swells the total number of worms in the body. There are, however, certain facts which indicate that the same total of worms will be more effective in causing anæmia if it be taken in divided doses rather than in a single massive infection.

It has been frequently observed—and in Cornwall the evidence is particularly clear—that if an anæmic person is removed from the infected place he often rapidly improves, and may recover completely without any specific treatment. Some natural decrease in the number of worms must go on, but at least as many may still remain when the anæmia has disappeared as are found in anæmic individuals who are constantly exposed to reinfection. This suggests that the maximum effect of infection is exerted soon after the worms reach the intestine, and that subsequently, as far as that particular batch is concerned, the host becomes relatively immune. Further, that frequent reinfection is a potent factor in producing the more severe grades of anæmia, apart from the contributions which are in this way made to the total mass of infection.

Of individual susceptibility we only know that some individuals do not become ill, though they harbour many worms and are exposed to infection and reinfection equally with very sick persons. As regards the supposed racial immunity of negroes, the exact observations of Ashford [19] suggest that the blacks, with an equal dose of worms, are as susceptible to anæmia as others, but that under the same circumstances of exposure they do not become so heavily infected. If the influence of variations in habits can be excluded, this indicates a resistance to infection rather than a resistance to the consequences, a relative immunity to the parasite and not to its poisons. There is, however, no definite evidence that anybody is definitely resistant to infection in the sense that ankylostoma will not live in him. With free exposure to larvæ, in only 2 to 5 per cent. of individuals is infection not discovered; this might easily be accounted for by defective diagnosis.

THE PATHOLOGY OF ANKYLOSTOMA ANÆMIA.[20]

The anæmia of ankylostomiasis may reach a very severe grade, cases with 15 to 30 per cent. hæmoglobin being common in heavily infected places.[21] Thus, of the 61 cases described in detail in the second report of the Porto Rico Commission, 46 had less than 30 per cent. and 18 less than 20 per cent. hæmoglobin. Estimations of the total quantity of hæmoglobin in the blood show, however, that the percentage content of hæmoglobin does not correspond to the actual deficiency, owing to a considerable increase in the plasma and the total volume of the blood. In the following table are given the results of determinations made by the carbon monoxide method [22] of Haldane and Lorrain Smith on three Cornish cases; for comparison I give the corresponding averages for normal persons (Haldane and Lorrain Smith); for cases of chlorosis, pernicious anæmia, and anæmia from hæmorrhage (Lorrain Smith); and for cases of splenomegalic polycythæmia (Boycott and Douglas). The figures are all corrected for variations in body-weight and are expressed as for a standard individual of 60 kilogrammes.

	Hæmoglobin per cent.	Total hæmoglobin: grammes.*	Blood volume cubic centimetres.	Relative number of red cells in whole blood.
Normal	100	400	3000	100
Ankylostoma No. 1 ...	44	311	5160	102
,, No. 2 ...	47 41	357 331	5520 5380	106
,, No. 3 ...	49	316	4620	128
Chlorosis	40	354	6480	173
Pernicious anæmia ...	26	179	5160	32
Anæmia from hæmorrhage	33	175	3900	73
Polycythæmia	162	1360	6000	400

* The assumption is made that 1·34 cubic centimetres of oxygen combine with 1 gramme hæmoglobin; the actual determinations are made in terms of oxygen capacity.

[17] Archives de Parasitologie, vol. xiii., 1910, p. 555.

[18] There are, of course, exceptions.

[19] Anæmia in Porto Rico, 1905, p. 10.

[20] Anæmia denotes a deficiency in the concentration (not the total quantity) of hæmoglobin in the blood.

[21] Records as low as 9 or 10 per cent. hæmoglobin are suspicious; the Fleischl instrument reads too low at the bottom of the scale. The worst case we had in Cornwall had 17 per cent. on the Haldane-Gowers hæmoglobinometer.

[22] The experimental proof that this method gives substantially correct results will be found in the Journal of Physiology, vol. xxxiii., 1906, p. 493, and the Journal of Pathology, vol. xiii., 1909, p. 256.

On the whole, therefore, in ankylostoma anæmia there is comparatively little shortage of hæmoglobin, nearly the whole of the anæmia being due to an increase in plasma. The condition, indeed, is a hydræmic plethora like chlorosis, and quite different from pernicious anæmia and anæmia from hæmorrhage, in which there is a more or less grave defect in the total quantity of hæmoglobin in the blood.

The colour index is characteristically low, and becomes lower as the grade of anæmia becomes more intense. Hence the total number of red cells in the body may be greater than normal. In a case of moderate severity—40 per cent. hæmoglobin—the morphological changes in the red cells are very few. There is some variation in size, most of the abnormal cells being too small, and a little poikilocytosis, but one does not find any marked signs of active regeneration of red cells (polychromasia, punctate basophilia, nucleated red cells), presumably because the whole blood contains about as much hæmoglobin as, and actually more red cells than, normal. In severe cases such changes appear in varying degrees, because, with a great increase of plasma, the rate of circulation cannot be sufficiently accelerated to carry an adequate quantity of hæmoglobin through the lungs in unit time. In all these particulars there is a great similarity to chlorosis, and a sharp contrast with pernicious anæmia. Occasionally in ankylostomiasis, as in anæmia from malaria and malignant disease, blood formation becomes more embryonic, and large cells with a high colour index are found.

In the relation of symptoms to the degree of anæmia there is a further similarity between these two states of hydræmic plethora. It is characteristic, and has been noted by Ashford and others, that in ankylostomiasis a pretty severe degree of anæmia may be associated with a surprising capacity for work. Thus in Cornwall men with less than 40 per cent. hæmoglobin were doing their regular work in the mine, and of men with between 40 per cent. and 50 per cent. hæmoglobin our notes record "feels quite well," "no symptoms," though their occupation entails a great deal of muscular effort. In the same way a chlorotic anæmic to the same degree will be fairly active, while cases of pernicious anæmia are obviously very sick people by the time their hæmoglobin has fallen to 40 per cent.

SOME THEORIES AS TO THE CAUSE OF THE ANÆMIA.

As already noted, our cases of ankylostomiasis had a real deficiency of hæmoglobin amounting to about 15 per cent. Without further information it is not possible to say whether this is due to the fact that they were working men, and on the whole decidedly less well nourished than the laboratory workers who furnished the "normal" data,[23] or whether there is actually some loss of blood from, or destruction of blood within, the body, which would account for a deficiency of this degree. Most observers have assumed that the blood volume is unaltered, so that the concentration of hæmoglobin in the blood is a measure of the total quantity; in other words, that a patient with 20 per cent. on the scale of the hæmoglobinometer has only one-fifth of the normal amount of hæmoglobin in his whole blood. They have therefore sought for reasons why so much blood should disappear.

The original idea was that the worms themselves suck blood.[24] This they undoubtedly do, for blood may be found in their alimentary canal, though, as a rule, in only a proportion of the worms obtained by the action of anthelmintics or post mortem. It is, however, not certain that this represents the natural condition. Whipple has pointed out that the worms may be observed to void blood, and it is possible that the empty individuals are to be accounted for in this way. Looss is of opinion that the normal food of ankylostoma is the mucous membrane, and that they only take in blood accidentally when they happen to penetrate a vessel. They do not seem to make much headway in digesting red corpuscles; on the other hand, it may be chiefly plasma that they are after. Many observers have expressed a natural hesitation in believing that such severe anæmia can result from the abstraction of such small amounts of blood; for, whether the worms digest it or not, the quantity must be small, else blood, or remains of blood, would be constantly present in the stools.

Actual enumeration shows more bites than correspond to the number of worms found post mortem. It has therefore been suggested that the worms often let go their hold on the wall of the bowel to take a fresh grip elsewhere, and that their old bites continue to bleed. In support of this hypothesis Loeb and Smith[25] found that extracts of the head-end of the worm inhibit coagulation of the blood, as also did Noc.[26] If this accounted for the anæmia, the stools ought to contain obvious quantities of blood. Sometimes they do, as may occur in any severe anæmia, and with massive infections with ankylostoma produced experimentally in dogs (Looss), but in the majority of cases blood is very seldom found.

Others have sought to show that blood is destroyed inside the body, and in this connexion have described the occurrence of hæmolytic substances in the bodies of the worms. Weinberg[27] found a hæmolysin in the allied nematode of the horse (*Sclerostomum equinum*), Preti,[28] Noc, Alessandrini,[29] and Calmette and Breton various similar substances in *A. duodenale* and *A. americanum*. Noc and Blasi[30] describe isohæmolysins in the serum. Loeb and Smith found no hæmolysin, but Whipple[31] found a very weak hæmolysin in *A. duodenale, americanum*, and *caninum*. Whipple thinks, however, that it is very unlikely that this weak hæmolysin can have any relation to the anæmia of ankylostomiasis. He points out that extracts of trichocephalus may be equally hæmolytic; cases of trichocephalus anæmia have been described,[32] but their etiological connexion with this common parasite is extremely doubtful. Whipple also found that ankylostoma may be embedded in the mucous membrane of the human intestine in small cysts filled with blood, and that this blood is not hæmolysed—almost conclusive proof of his contention that such hæmolysins as are present are quite negligible.

Even if hæmolysins were present in large amounts they could not be regarded as being the cause of the anæmia unless evidence of actual hæmolysis in the body were obtained. No such evidence exists. The amount of iron in the liver is normal[33] instead of being much increased, as it is when excessive destruction of red cells occurs (pernicious anæmia, malaria); and determinations of the total amount of hæmoglobin in the blood show that only about one-tenth is missing altogether; this might easily be accounted for by the small amount lost by the sucking of the worms and the bleeding of their bites.

A certain number of cases when quickly improving show some degree of polycythæmia, the red cells rising to between 6 and 7 millions per cubic millimetre.[34] This is clearly the same phenomenon as is well known in chlorosis, and is due to a rapid concentration of blood containing in all too many red cells of a low colour index. Weinberg and Leger[35] are, however, ingenious enough to see in it an indication of the effect of repeated small doses of hæmolysin, which, as Cantacuzène[36] showed, may stimulate the marrow.

A good number of worms acting for some time can cause ultimately a marked degree of sclerosis of the intestine, with atrophy of the mucous membrane. It is difficult to see how this can have much to do with producing the anæmia, though the probability of some impairment of nutrition and delay in recovering from the effects of the anæmia must be considered.

The essential change in the blood, therefore, is an increase in plasma, with a secondary, compensatory reduction in the colour index. There is probably also a small defect in the total amount of hæmoglobin, which may be attributed to the local action of the worms in the bowel. The response to this loss may be imperfect owing to the prolonged oxygen starvation of the marrow itself.

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[23] L. Smith's observations on a few hospital patients not suffering from anæmia support this interpretation (Transactions of the Pathological Society of London, vol. li., 1900, p. 311).

[24] Cf. "The Vampire of the South," by Marian Hamilton Carter, McClure's Magazine, vol. xxxiii., 1909, p. 617.

[25] Proceedings of the Pathological Society of Philadelphia, vol. xxx., 1904, p. 173. Centralblatt für Bakteriologie, Orig., Band xl., 1906, p. 740.

[26] Annales de l'Institut Pasteur, vol. xxii., 1908, pp. 896, 955.

[27] Ibid., vol. xxi., 1907, p. 798.

[28] Münchener Medizinische Wochenschrift, Band lv., 1908, p. 436.

[29] Il Policlinico, vol. xi., 1905, p. 541.

[30] Annali d'Igiene Sperimentale, vol. ix., 1909, p. 449.

[31] Journal of Experimental Medicine, vol. xi., 1909, p. 331.

[32] Deutsche Medizinische Wochenschrift, 1902, p. 468; 1905, p. 95.

[33] Rake: Journal of Pathology, vol. iii., 1896, p. 107. Hopkins: Guy's Hospital Reports, vol. l., 1894, p. 349. Ryffel: Journal of Pathology, vol. xiv., 1910, p. 411.

[34] See, e.g., the cases in the appendix to Anæmia in Porto Rico, 1904.

[35] Bulletin de la Société de Pathologie Exotique, vol. i., 1908, p. 229.

[36] Annales de l'Institut Pasteur, vol. xiv., 1900, p. 378.

ABSTRACT OF

The Hunterian Lectures

ON

THE ANTHROPOLOGY OF ANCIENT BRITISH RACES.[1]

Delivered before the Royal College of Surgeons of England on Feb. 20th, 22nd, 24th, and 27th, and March 1st and 3rd, 1911,

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,

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THE ANTIQUITY OF MODERN MAN.

IN a series of six Hunterian lectures on the above subject, given recently in the theatre of the Royal College of Surgeons, Professor Keith described the human remains found in the Upper (100 feet) gravel terrace of the Thames Valley at Galley Hill, near Northfleet. The remains, which are now in the collection of Mr. Frank Corner, M.R.C.S., were found by the late Mr. Robert Elliott towards the end of 1888, and although at first there was a considerable number of geologists who refused to regard these remains as equal to the 100 feet terrace in point of time, yet a fuller consideration of the evidence produced by Mr. E. T. Newton, F.R.S., had recently convinced experts both at home and abroad that these remains were embedded when the level of the Thames was 90 to 100 feet higher than it is to-day. The antiquity of the Galley Hill man must be measured by the work done by the Thames since that time. The river has not only worn its estuarine valley down 90 to 100 feet owing to an elevation of the land, but in the opinion of experts has also eroded and filled up a channel from 40 to 50 feet below its present level. Measured at its lowest estimate, the Thames bed has been lowered and raised at least 170 feet since the Upper terrace of gravel was laid down in post-Glacial times. Seeing how little the level and aspect of the valley have altered since the Roman period, and that there is no reason to presume that changes in level and in climate occurred at faster rate in past times than in the present, one may safely allow a period of 1000 years for every foot which the river has worn away or laid down. On this basis of computation the antiquity of the Galley Hill remains may be estimated at 170,000 years—probably an under-estimate.

A consideration of the parts of the skeleton found at Galley Hill shows how old the modern type of man is. The Galley Hill man, although differing in several features, is essentially the same in structure and form as the man of to-day. He was a little over 5 feet in height, round-chested and narrow-shouldered, with a well-developed muscular system. His brain development may be estimated from the stone implements found in the Upper terrace gravel, from the size of his cranial cavity—1360 cubic centimetres, a fair endowment when his small size is kept in view—and from a cast of that cavity which reveals a highly convoluted brain showing all the essential features of the modern brain. From the moulding of the lower jaw we may safely infer that speech was developed; his teeth and muscles of mastication do not differ markedly from later men of the Neolithic period. His face was short and his forehead of a type quite common amongst modern men. His peculiar features are the extreme length and narrowness of the head (the width is about 67 per cent. of the length), the shape of the upper and lower extremities of the thigh bones, and the shortness of the leg bones.

The Galley Hill man is the only representative known of the thousands of generations of Englishmen which span the vast period of human life in this country from Glacial to Neolithic times. We may safely presume, said the lecturer, that the relatively long-headed men of Neolithic times and similar modern types still to be found amongst the inhabitants of the western parts of Great Britain and Ireland are directly related to Palæolithic man. How far the single individual found at Galley Hill represents the type of man prevalent in palæolithic England remains to be seen, but the discovery last year in France by Herr O. Hauser of a man of similar type in a stratum which overlies that in which the Neanderthal race is found, shows the existence of the same type of man on the continent during the long Palæolithic period. Similar discoveries have been made in Belgium, Bohemia, and Moravia, and it is reasonable to conclude that the Galley Hill type was widely spread in Europe during the Palæolithic period.

[1] Illustrated by the Museum collection of the Royal College of Surgeons of England.

PRE-GLACIAL MAN.

Professor Keith reminded his audience that the Galley Hill bones, by far the earliest known human remains yet found in England, took one only a little way back in the most recent chapter of the earth's history. The period of the Galley Hill man was certainly post-Glacial. Until a little over three years ago we knew nothing of the pre-Glacial ancestors of man in Europe, but in 1907 a lower jaw of a human being was discovered in a stratum which geologists regard as a formation laid down by a river before the first Glacial period had settled on Europe. The sandpit in which the mandible was discovered is situated in Baden, in the valley of the tributary of the Neckar, some eight miles from Heidelberg. Professor Keith said that great credit was due to Dr. Otto Schoetensack, professor of anthropology in the University of Heidelberg, for the splendid monograph which has been published concerning this remarkable "find." The importance of the Heidelberg "find" lies in the fact that for the first time it is possible to form a conception of the stage of evolution reached by man in Europe after the Pliocene period had closed and before the Glacial period had set in. The teeth do not differ to any great degree in size and shape from those of the more primitive races of modern time. The rotatory or side-to-side movement of the teeth, which distinguished man from all known anthropoids, was already evolved; the canine tooth had taken its place in the uniform human dental series. The long framework of the jaw is so massive that at first sight it appears more anthropoid than human. It is clear that the muscles of mastication were developed to an extent far beyond that known in any other human race, and it may be safely inferred that, whatever the nature of the food consumed may have been, great muscular force was necessary for its pulverisation. The lower jaw takes an important part in the mechanism of speech; certain characters of the modern jaw are regarded as adaptations to a faculty which distinguishes man from all other beings. These speech characters in the Heidelberg jaw are of an intermediate nature; they appear to represent a stage in the evolution of the human chin as we know it from a simian condition. The parts appear ill adapted for speech, and at the most only a primitive stage in the evolution of language could have been reached.

The remains of the individual (*Pithecanthropus erectus*) found in Java 20 years ago by Dr. Eugene Dubois, now professor of anthropology in the University of Amsterdam, correspond in point of time—so far as time can be determined by the fossil plants and animals found with the remains—to the Heidelberg remains. It would be of great interest to compare these two individuals—so far apart in space and yet associated in point of time—but unfortunately we know nothing of the mandible of Pithecanthropus erectus and nothing of the skull of Homo Heidelbergensis. In Pithecanthropus the femur is not unlike the modern human thigh bone; it has all the characters associated with erect posture. Professor Dubois estimated the brain to be intermediate in point of size to the modern human and anthropoid brain. The only point which offers a standard for the comparison of the pre-Glacial man of Java with the Heidelberg remains is the last molar teeth. We know the character of the last upper molar of Pithecanthropus and the last lower molar of the Heidelberg man. In point of size the two are comparable; the system of mastication was certainly the same in both and the palate of the one was probably not very different from that of the other. The Heidelberg, however, seems too massive and large to be fitted to the calvarium of Pithecanthropus. These two individuals from Germany and Java represent all that is yet known of the pre-Glacial ancestors of man.

THE NEANDERTHAL RACE.

Professor Keith described the progress which had been made during the last four years in our knowledge of the Neanderthal race. The researches of archæologists and

anthropologists in the south-western districts of France—especially along the valley of the Dordogne—were making good the blank in our knowledge of man in Europe during the Glacial and post-Glacial periods. The Neanderthal race was clearly the successor and probably direct descendant of pre-Glacial man, so far as may be judged from the scanty remains of that human type found in Heidelberg and Java. Notwithstanding the recent discovery of three individuals of the Neanderthal race in the valley of the Dordogne during the last four years, the cranium brought from Gibraltar in 1864 by the late Mr. George Busk, F R S., at one time President of the Royal College of Surgeons of England, and now lodged in the Museum of the College, still remains the most valuable document relating to the physical characters of the race, for in no other specimen are the bones of the face and floor of the cranial cavity so perfectly preserved, and none show so close a relationship to the known characters of pre-Glacial man. The Gibraltar specimen has had a chequered history; quite recently Colonel R E. Kenyon discovered in the minutes of the Gibraltar Scientific Society that the skull was found and presented to the society by its secretary, Lieutenant Flint, R.A., in 1848, eight years before the Neanderthal calvarium was discovered in South Germany. It was seen and examined by Huxley, who, although he had just completed his famous memoir on the Neanderthal calvarium, did not fully recognise its important bearing on the early physical history of man. The French anthropologists MM. Quatrefages and Hamy assigned the Gibraltar specimen to the Neanderthal race in 1885, and then it passed into obscurity until 1908, when Professor Sollas of Oxford University recognised its importance and again drew the attention of European anthropologists to it by an elaborate and accurate description in the Philosophical Transactions. It is now very clearly recognised, said the lecturer, that although it was a very easy matter to recognise the sex of the living person from the features of the face and head, it was not unfrequently impossible to determine sex from an examination of the skull. So far all the crania of the Neanderthal race discovered have been assigned to the male sex; Professor Sollas came to the conclusion that the Gibraltar specimen represented a female of that race. The question of sex as regards the Gibraltar specimen must be left open, for its peculiar features may be explained by supposing it to belong to an earlier and more primitive human type than the Neanderthal race. While the cranial capacity, which may be taken as an index of size of brain, is above the average of modern man in the typical members of the Neanderthal race, that of the Gibraltar individual is much below—about one-fifth less. The nose of the Gibraltar individual must have formed a remarkable feature, quite unlike any form now known to exist, but very probably the precursor of the prominent nose of the modern European. In some features, especially in the region of the face between and below the eyes, the condition in the gorilla was recalled. Recently Colonel Willoughby Verner had presented a thigh-bone to the Museum of the Royal College of Surgeons of England which he discovered in a cave previously unexplored in the neighbourhood of Gibraltar. This bone, that of a person almost a pygmy in stature, was quite unlike any human thigh-bone now known and indicated a peculiar race. From the bones of other animals found with it a degree of considerable antiquity may be presumed for this recent discovery.

THE EVOLUTION OF THE MODERN TYPE OF MAN.

Professor Keith analysed the various factors that appeared to have played a part in the evolution of the modern type of man. The characters of the Neanderthal man—the successor of the pre-Glacial European—were such that there could be no doubt, in spite of the largeness of his brain, that he was more simian or primitive in the scale of evolution than any other known form, past or present, with the exception of his predecessor, pre-Glacial man. A little over a year ago Herr O. Hauser discovered in the lower Aurignac stratum of the valley of the Dordogne, the stratum which immediately overlies the Mousterian beds in which the remains of the Neanderthal race are found, the skeleton of a man of the modern type and closely related in feature and stature to the Galley Hill remains, the oldest yet found in England. The modern type appears, from this discovery, to follow quickly on the heels of the Neanderthal type. To account for the sudden appearance of the new type Professor Klaatsch of Breslau, who has made a very minute examination of the skeleton lately found in France, has formulated the theory that man may have been evolved on several occasions and from different stocks. The Neanderthal race, because of certain gorilla-like features, he regards as having sprung from the same stock as that anthropoid, while the Galley Hill or modern type has been evolved from the basal stock of another anthropoid—the orang. In the lecturer's opinion Professor Klaatsch's theory was untenable, and the explanation was to be obtained from another source. In 1885 Dr. Pierre Marie, the well-known Parisian physician, described a peculiar disease of growth which he named acromegaly—a disease in which various parts of the adult body begin to grow, especially certain parts of the face and head, but all the bones, muscles, and soft parts are increased in bulk, especially those of the hands and feet. The parts which are chiefly affected in the unfortunate victims of this disease are those which obtain such a remarkable development in Neanderthal man. It is further known that the condition of acromegaly is connected with a disturbance in the functions of the pituitary gland. The evidence now accumulating suggests that this gland furnishes the tissues of the body with a substance (internal secretion) which so sensitises them that they hypertrophy when subjected to a degree of exercise which would not affect the normal tissues of the body. In anthropoids—in the most primitive races of man—this pituitary influence was evidently very marked. The explanation of the problem relating to the evolution of the modern from the Neanderthal type of man was most likely to be found in a more complete knowledge of the exact part played by the internal secretions of the pituitary and other glands with the growth of the body. On the evidence available we are justified in assuming that the evolution of the modern type of man was consequent on a change in the function of the pituitary gland. No doubt the amelioration of the conditions of life which arose with the dawn of human knowledge had also played a part in the evolution of the modern type, but the exact manner in which environment influences heredity is still obscure.

PREHISTORIC BRITISH TYPES OF MAN.

With the steady increase of evidence the antiquity of man in Britain receded into a more and more remote past. No fossil remains of Glacial or of pre-Glacial man had yet been discovered in England, but it is certain from the stone implements left behind that at least the southern part of the country was inhabited. It is highly probable that fossil remains of this race will yet be found, and will show that these very early Britons were of the Neanderthal type. At present our knowledge of the physical characters of the inhabitants of Britain commences with the Galley Hill man from the Upper terrace of the Thames Valley. The subsequent period is a long blank, but the cranium found by Mr. W. M. Newton in a gravel pit near Dartford in 1902 may prove to have an antiquity represented by the Lower terrace of the Thames Valley. The geological evidence relating to this skull, which the discoverer has presented to the Museum of the College, is open to question until further discoveries of a similar nature are made. The Dartford cranium is of the Cromagnon type; it is known from the discoveries made in the caves (Grimaldi) near Monaco and in those of the Dordogne Valley in France that the Cromagnon race succeeded the Galley Hill race; it is possible that this may also be found to be the case in England. If the Dartford skull be excluded from the list of authentic documents, then the remains which succeed those of Galley Hill in antiquity are the human bones found during the excavation to form the Tilbury Docks in 1883 and which were fully investigated and described by Sir Richard Owen and are now preserved in the British Museum (Natural History), South Kensington. The remains of the Tilbury individual were found at a depth of 34 feet under alternate layers of mud, clay, and peat which had been formed during the slow subsidence of the river bed since these human remains were imbedded in the sands. The remains lie over a gravel bed situated 130 feet below the terrace in which the Galley Hill man was found. If, as a working hypothesis, a subsidence of a foot for each 1000 years be allowed, and the rate may be less, an antiquity of 30,000 years may be assigned to the Tilbury remains. The importance of the

Tilbury discovery lies in the fact that in size and form of head this individual may be accepted as a type which is still prevalent in the modern population of England. In 1862 Huxley distinguished a form of prehistoric English skull and gave to it the name "River-bed type." The specimens he selected to represent this type are in the collection of the Royal College of Surgeons, one being found in the alluvium of the Trent Valley, near Muskham, the other in a tumulus in Anglesey. The Tilbury skull also belongs to this type. Four other crania in the Museum of the College, found in circumstances which point to a great antiquity, are also of this type. A cranium of similar form was discovered by the Rev. E. H. Mullins, rector of Langwith-Bassett, Derbyshire, two years ago in a limestone cave, with remains of the reindeer and other forms of mammals now extinct in England. The cranium found in Gough's Cavern, Cheddar, was apparently also of this type, but the lecturer had not examined this specimen. The same type was found recently by Mr. Neil Baynes, F.S.A., in a tumulus of Anglesey, and it was evident from measurements made by Mr. Baynes on the heads of living inhabitants of that part of Wales that the River-bed type of man was still prevalent there. In the lecturer's opinion this ancient British type, in spite of many invasions, still formed the foundation of the modern population of England.

Professor Keith exhibited and described an almost complete skeleton of a man discovered last year by Mr. S. Hazzledine Warren, F.G.S., in a prehistoric (Neolithic) stratum which is being exposed by the sea on the coast of Essex, north of Walton-on-Naze. An antiquity of at least 4000 years can be assigned to this Englishman. He was a finely made young man, with a stature of 5 feet 2 inches, sharp prominent nose, finely moulded face, head, hands, and feet, and presented very distinct evidence of a specialisation in the right arm, pointing to a trade. His teeth were worn flat and met edge to edge as in pre-historic races. He evidently died in the autumn, for within the skeleton Mr. Warren detected over a pint of seeds of the blackberry and dog-rose, indicating the form of diet then available.

The lecturer also exhibited and described briefly the human remains which had lately been found during the systematic excavation of the rude stone monument at Coldrum, Kent. These excavations were carried out, with the permission of the Lord of the Manor, by Mr. F. J. Bennett, F.G.S., of West Malling, who has done so much to encourage archæological research in the central parts of Kent. Mr. Bennett found, during excavation of the stone chamber in the central part of the monument, remains of the skulls of ten individuals, with other bones, which included parts of about ten other persons, so that altogether apparently about a score of people had been buried there, many of them women and children. Unfortunately nothing was found during the excavation which permits a date or period to be assigned to the remains. If the remains found are the builders of the megalithic monuments of Kent, then these builders were people of medium stature, with heads in which the length was relatively great to the breadth. The metallic resonance of the bones found on the lower platform during the excavation points to a considerable antiquity for these remains. Further excavation by Mr. Bennett, which is much to be desired, may reveal more conclusive evidence as to the relationship between these people buried in the chamber and the builders of the monument.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.—The annual meeting of subscribers to the South Devon and East Cornwall Hospital was held on March 6th under the presidency of Mr. Waldorf Astor, M.P. The medical report stated that 1450 in-patients had been admitted during 1910. The out-patients numbered 2522. During the year 363 patients and 85 nurses were sent to the Pearn Convalescent Home, in connexion with the institution. The financial statement showed that the income amounted to £8519 and the expenditure to £10,004. The deficiency at the close of the year was £1485, compared with £2317 at the end of 1909. It was stated that in order to clear the deficit stock to the value of £5146 had been realised, but a legacy of £3000 had been received towards replacing that amount.

"606" AND SYPHILIS:

A REPLY TO MR. C. F. MARSHALL'S VIEWS.[1]

BY JAMES McINTOSH, M.D. ABERD.,
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AND
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(*From the Bacteriological Laboratory of the London Hospital*—DR. W. BULLOCH.)

DURING the few weeks since "606" was put upon the market for general use an undertone of criticism has become manifest in this country. It is suggested that the claims of Ehrlich have not been substantiated, that the drug has been prematurely "boomed," and that it is rapidly finding its level as, at best, a useful auxiliary to mercurial treatment. These views found expression, to some extent tentatively, in a recent trade publication and led the reviewer of THE LANCET to detect therein a certain atmosphere of disappointment.[2] Some weeks ago Mr. Marshall, also, communicated a disparaging paragraph to a medical journal,[3] and after a similar note in another journal,[4] he has now found expression at some length as an original article in the columns of THE LANCET itself. Mr. Marshall arrives at the following conclusions:—

1. In the present state of our knowledge there is no drug which can replace mercury in the treatment of syphilis. 2. Although arseno-benzol causes rapid healing of certain syphilitic lesions, this effect is not constant and is often only temporary. 3. There is no proof that an abortive cure of syphilis can be realised by this drug. 4. If arseno-benzol is indicated at all in the treatment of syphilis, it is chiefly in those cases which are not influenced by mercury, but such cases are rare. Moreover, some cases resist the action of both drugs. 5. The administration of arseno-benzol is attended with many risks and dangers.

Up to the present no protest has appeared against what seems (to us) to be a totally unfounded chorus of disapproval. The matter might be considered to be one of no particular moment were it not for the fact that, in addition to misleading the great mass of the profession outside the vortex, as it were, of these questions, these expressions of disapproval directly reflect upon the veracity or scientific accuracy of those who have previously described the results of the use of "606." Among this latter class we find ourselves.

In April, 1910, Dr. W. Bulloch, bacteriologist to the London Hospital, obtained a supply of "606" from Professor Ehrlich. This material was entrusted to one of us and a series of experiments were carried out with it upon animals infected with syphilis and other diseases with a view to confirming the therapeutic and toxic effects. Some of these results were published in THE LANCET.[5] The complete justification of the claims of the drug in these respects led to its application to human beings on July 19th, 1910. From this date onwards "606" has been administered to a selection of hospital patients suffering from all forms and all degrees of syphilis. The administration has conformed to the repeated instructions of Ehrlich, and all cases have been in the beds of, and under the direct observation of, Dr. J. H. Sequeira, dermatologist to the London Hospital. Extensive and repeated observations have also been carried out in the Bacteriological Laboratory of the London Hospital. Special attention has been paid to the question of permanent cure or relapse, and thus a comparatively small number of cases only has been dealt with and followed. Only one case in our series has escaped continuous observation. We have had, therefore, eight months' experience of "606" on human beings; a similar period has been enjoyed only by a few who also obtained material from Ehrlich for use upon hospital patients. Mr. Marshall is not among these few. His personal experience must, therefore, rest upon any observations he may have made during the last few weeks, or conceivably upon a few cases he may have seen under treatment by the courtesy of others. These considerations lead us to believe that the results obtained at the London Hospital are of greater value than results, if any, obtained by Mr. Marshall.

[1] See THE LANCET, Feb. 25th, 1911, p. 501.
[2] THE LANCET, Feb. 18th, 1911, p. 448.
[3] Medical Press and Circular, Dec. 14th, 1910.
[4] Brit. Med. Jour., Feb. 18th, 1911, p. 401.
[5] James McIntosh: THE LANCET, Sept. 3rd, 1910, p. 713.

Mr. Marshall probably is not acquainted with our cases, since our publication of them in THE LANCET[6] is now largely out of date; further, we believe that few other observers have as yet appeared in print. Thus, Mr. Marshall's opinions cannot rest upon published observations in this country, and it would have been more fitting if he had published his own evidence or waited for others to have completed their observations before embarking upon very wide conclusions which are entirely at variance with the enormous mass of publications to date, including those of the most celebrated syphilologists.

We propose to deal with Mr. Marshall's generalisations in some detail. At the outset he regrets the manner in which "606" has been introduced. He considers this manner commercial and not in accordance with the ethics of scientific medicine. Mr. Marshall is unaware of the despicable details surrounding this question; if he were, he would not have cast this slur upon the name of the greatest medical investigator of our time. We cannot go into details, but as a fact Ehrlich has distributed free vast quantities of "606" practically throughout the world. His institute was a Mecca for medical men coming from the most distant countries for "606." The place was crowded with personal applicants for "606." The Speyer House was a manufactory of "606" Does Mr. Marshall imagine that the great institute at Frankfort was to permanently lapse into a centre for distributing "606"? Is Behring's antitoxin still supplied free from the place of its origin? However, Mr. Marshall is annoyed that the manufacture has been handed over to a commercial firm. The manner of introduction of "606," however, should not be "naturally calculated to create a strong prejudice against it" when it has been vouched for by such eminent sponsors.

Mr. Marshall asserts that before "606" can replace mercury and iodides in the treatment of syphilis it must be proved capable of (1) aborting the disease, or (2) preventing tertiary or parasyphilitic manifestations, or (3) healing lesions more quickly, more constantly, and with less liability to relapse than is the case with mercury, or (4) it must exhibit fewer dangerous toxic effects. He says, "Let us see whether arsenobenzol has been *proved* [the italics are our own] to fulfil any of these conditions." By a series of remarkable generalisations, unsupported by adequate evidence, he finds that these conditions have not been fulfilled—*ergo*, "606" cannot replace mercury and iodides. He sets up a row of impossible essentials and then demolishes them. How can these things be *proved?* "606" has only been available for about 12 months and is still, in certain particulars, in the experimental stage. It is not *proof* which is looked for but reliable evidence, and this evidence must be obtained by experiment. We have amassed some evidence on these points, and this will be published when our experiments are sufficiently advanced.

Mr. Marshall's first demand relates to abortive cure, which, incidentally, is not what is meant by "*therapia sterilisans magna.*" We note his views on the Wassermann reaction and the perfectly obvious possibilities suggested by Flashman and Butler; we also note his remarks on superinfection, but these things were well known years before Pinard's Thesis of 1910. For our part we have evidence which justifies us in retaining the hope that an abortive cure of syphilis by "606" will be realised.

With regard to the second demand as to the prevention of tertiary and parasyphilitic lesions, we agree that this need not detain us. It is unusual, we believe, for such lesions to occur within two years of the infection, a period much longer than that during which "606" has been available. At any rate, we have not seen any records of these occurrences following a secondary attack cured by "606."

The question next arises as to whether "606" cures syphilitic lesions more rapidly or more constantly than mercury. Mr. Marshall refers to certain photographs. He says it is quite common for such results to be obtained by mercury. We, however, understand from the literature, and in particular from Dr. Sequeira, that such rapid healing as occurs with "606" is not common with mercury. With "606" these results are almost invariable. We have seen no syphilitic lesion, even of the gravest form, which has not healed with great rapidity after "606," except interstitial keratitis and three cases in which, after the syphilitic element had been removed, a second underlying pathological state was found. This is also the same conclusion of most, if not all, competent and apparently unbiassed observers. Relapses, as Mr. Marshall observes, have been reported. We may add that a large number of relapses have been reported; we also have had a large number. We have evidence that these relapses are dependent upon the size or method of application of the dose. Mr. Marshall labours under a singular delusion if he imagines that 0·6 gramme is an average dose. He cannot be aware of the repeated directions of Ehrlich to continually increase the severity of the application. 1·0 to 1·4 grammes of "606" may at present be taken as an average dose. We need hardly add that this amount is not given in one application, but in two or three fractions over a period of three to six days. One or two of these applications must be by the intravenous route. Ehrlich considers, and we follow him, that any much less intense treatment is merely trifling. The lesion may be cured, but many will relapse.

Next, Mr. Marshall states that "in fact" "606" treatment is merely symptomatic and does not touch the "disease itself"; he refers apparently to the spirochæte. Now, this statement of alleged fact is entirely erroneous. "606" has no reference to symptoms—it is purely a parasiticide, and further, by comparative experiments on man or animals, has repeatedly been proved to exert an enormously greater destructive effect than mercury in any form or any dose. In cases of chancre examined by us the organisms have not been detected in the lesion after about 14 hours in the case of intramuscular or subcutaneous injections, or nine hours in the case of intravenous. In animals we have seen a disappearance of spirochætes in seven hours after 0·1 gramme of "606," and in four days after two *human adult* doses of biniodide of mercury intravenously.

Lastly, Mr. Marshall refers to the dangers of "606." Several deaths have occurred; we believe that the number must now reach about 20 or more. Some of these were advanced cases of general paralysis. The result is not surprising. About six also were infants. Death was hastened in these cases during the period of determination of a suitable dose for such infants. These accidents should not occur at the present time. Other deaths have occurred in subjects of organic heart disease or vascular degeneration. Ehrlich has repeatedly urged that such patients should be treated with the greatest care. These deaths are due to a relatively too intense treatment and not necessarily to any particular form of application. Mr. Marshall's statement that the intravenous route is particularly dangerous is not borne out by facts. We call to mind one death only which was directly attributable to this method—a case of embolism of the pulmonary artery. The cause of this embolism was explained and must be guarded against. Alarming symptoms have also arisen from neglect of obvious precautions or distinct recommendations. All these things are to be found in the literature. For our part we have not yet seen any occurrence following an intravenous injection, which would give anyone the slightest alarm, nor, of course, after any other form of application.

Among the possible remoter ill-effects is blindness. Blindness due to optic atrophy after the use of arsenical compounds is notorious, and was a potent factor in inducing Ehrlich to restrict the use of "606" until the occurrence of these accidents could be excluded. They have been excluded; they have not occurred. Relative blindness, however, may occur, but these cases have no direct connexion with "606." They are pure relapses, syphilitic iritis or retinitis, and are no more frequent than, and do not differ from, the inflammatory eye lesions occurring with or without mercury treatment. We have ourselves observed a case.

To sum up, we find that on the evidence the criticisms of Mr. Marshall are unjustified and at variance with the opinions of the vast majority of competent observers. The conclusions relating to "606" which we feel justified in arriving at are:—

1. On the average, if not invariably, "606" is far superior to mercury in the symptomatic treatment of syphilis.

2. It is certain in the earlier stages of syphilis, and probable in the later, that courses of "606," applied at properly ascertained times, will prevent the onset of symptoms with far less inconvenience and effect upon the general health than mercury.

3. "606" will probably be used by the unskilled as

[6] James McIntosh and Paul Fildes: THE LANCET, Dec. 10th, 1910, p. 1684.

subcutaneous or intramuscular injections for the symptomatic treatment of syphilis without danger.

4. The skilled will use intravenous injections in the hope, not without foundation, of realising a *therapia sterilisans magna*.

OBSERVATIONS ON THE USE OF SALVARSAN IN SYPHILIS.

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IN the course of an investigation into the value of Ehrlich's latest remedy for syphilis, which we have been carrying out at the Military Hospital, Rochester-row, for some months now, some points have occurred which may be of general interest.

Realising its enormous importance to the army should the claims for the effect of "606" on syphilis which were at first advanced be substantiated, we determined to carry out as thorough an investigation as possible for ourselves, and in June last year applied to Herr Geheimrat Professor Ehrlich for some samples of his remedy. Professor Ehrlich very kindly placed a generous supply at our disposal, and we should like to take this opportunity of expressing our appreciation of his kindness in renewing our supply from time to time till the remedy was placed on the market, as well as for his courtesy in answering the inquiries on various points which we addressed to him.

For the purposes of our investigation we have taken into consideration (1) the method of administration, with dosage; (2) the immediate after-effects attendant on each method of administration; (3) the effect of the remedy on (*a*) the clinical signs of the disease, (*b*) the treponemata present in local lesions, (*c*) the Wassermann reaction; and (4) the question of relapses.

Our inquiry has so far been carried out on 150 cases of syphilis, and these, with the exception of a very small proportion which has passed out of our control by transfer to the Army Reserve, will continue under observation till the investigation is closed.

In regard to methods of preparing the remedy for use, we have experience of three, two for subcutaneous or intramuscular injection, and one for intravenous. The first we adopted was that advocated by Michaelis; it was chosen because it resulted in a more nearly isotonic emulsion than others, and was as follows: 20–30 c.c. of hot, sterile, distilled water were poured into a porcelain capsule, and into it was slowly sprinkled the dose of "606" it was intended to administer, the solution being stirred vigorously meantime. To the highly acid yellow solution which resulted normal NaOH solution was added in the proportion of 1 c.c. of the alkali to every decigramme of the salt, the mixture being constantly stirred. The result was the formation of a flocculent precipitate which finally dissolved, leaving a clear, yellow, highly alkaline solution. To this was added three drops of 0·5 per cent. alcoholic solution of phenolphthalein, which turned it crimson. Normal acetic acid was then added drop by drop till the crimson colour disappeared, indicating neutrality. Meantime a golden yellow precipitate formed, so that finally the capsule contained a yellow emulsion, which was made up to 40 c.c. by adding sterile physiological salt solution. In later cases we discarded the use of phenolphthalein as an indicator and used litmus paper, to which the emulsion was made slightly alkaline.

The emulsion was injected deeply into the subcutaneous tissues between the angles of the scapulæ, 20 c.c. on each side, in the earlier cases, and later into the deep subcutaneous tissues overlying the pectoral muscles or into the muscles themselves. The injection was made very slowly, avoiding the immediate neighbourhood of the skin, and the resulting tumours were dispersed by massage.

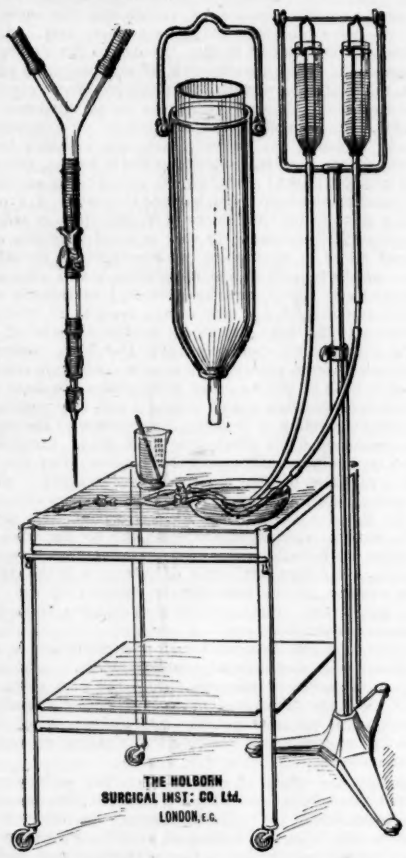
In order to avoid the inconvenience of administering such a large volume of emulsion by injection, after injecting 38 cases by Michaelis' method, we changed our technique to that advocated by Wechselmann and Lange, and prepared the emulsion as follows. The salt was poured into a porcelain vessel and dissolved by rubbing it up with ordinary caustic soda solution. Glacial acetic acid was then added till the golden yellow emulsion which resulted was only slightly alkaline to litmus paper. The precipitate was then taken up into 8–10 c.c. of sterile physiological salt solution and injected as above.

The immediate effect of an injection given in either of the above ways was some local pain, which varied in intensity with different patients from very slight to somewhat severe, but generally disappeared in an hour or two. The following day, or the day after, a local reaction, accompanied by pain and swelling, occurred at the site of injection, the pain being sufficiently severe in a few cases to require a small dose of morphia. This reaction lasted for a variable time, but in the great majority of cases had died away by the sixth day. The temperature on the evening of injection exceeded 100° F. in only 7 out of 43 cases, the highest recorded being 103·4° F., and the next highest 102° F. On the second, third, and fourth evenings the temperature was on the whole higher, though in no case did it rise above 102·2° F. Patients varied considerably as to the day on which their subsequent fever was greatest, but in the majority it attained its height on the third evening. On account of the local reaction and fever, it was found necessary to keep almost all the cases in bed for five days.

We have found that a great disadvantage of this method of administration is, besides the pain and discomfort, the local infiltration at the site of injection, and the risk of the skin sloughing, especially if the injection is made subcutaneously. We believe that in every case where "606" is given in this way there is necrosis of tissue at the site of injection, however deeply placed the latter may be, and in this we are supported by Orth, who showed to the Königsberg Conference two specimens of necrosis in gluteal muscles which had given no clinical evidence of their presence during the six weeks which elapsed in each case between the injection of "606" and the death of the patient. In a few of our cases the skin sloughed at the end of from 10 to 14 days, while in five others a slough formed at the end of from three to four months. Some of the sloughs, which consisted of necrosed muscle, skin, and subcutaneous tissue, were analysed by Major W. W. O. Beveridge, R.A.M.C., at the Royal Army Medical College, and all of them, including those which formed from three to four months after the injection, were found to contain arsenic, some in surprisingly large quantities: thus, after an injection of 0·4 grm., an amount of arsenic equivalent to 0·075 grm. of "606" was found in one slough four months later. In view of this fact, it seems to us probable that only a very small proportion of the remedy administered in this way can be absorbed daily into the circulation, so that if it is possible to produce "606"-resistant strains of treponemata by administering minute non-lethal doses of the drug to them this would appear to be a good way of doing it. In many of our cases the friction of accoutrements caused local infiltrates to form, and these sometimes necessitated the soldier being excused part of his military duty for a few weeks, though none of the patients had been returned to duty in less than a fortnight after the injection, or before all local trouble had apparently subsided. On these grounds we were glad to adopt Professor Ehrlich's advice to use the intravenous method. In preparing the drug for administration in this way we have been guided by Dr. Schreiber's papers on the subject, and do so as follows: Into a glass cylinder, graduated in cubic centimetres, are poured 100 c.c. of hot, sterile, distilled water, and the contents of a capsule of salvarsan are slowly shaken into it, while the mixture is vigorously stirred with a glass rod. To the resulting clear yellow solution normal NaOH solution is then added from a pipette while stirring. A flocculent precipitate forms at first, which re-dissolves, leaving a clear yellow, alkaline solution. When quite clear the solution is made up to 200 c.c., with warm, sterile, physiological salt solution, and is then ready for use. If it be desired to give a smaller dose than is contained in one capsule (0·6 grm.), it is convenient to make the final quantity of solution 240 c.c., so that each 40 c.c. of it corresponds exactly to 1 decigramme of the powder, and the dose can be accurately gauged. The important point about this method of making up the solution for injection is

its great dilution, since to administer "606" intravenously in a concentrated solution is highly dangerous. Having prepared the solution, the vessel containing it should stand in hot water while the apparatus for injecting it is being arranged. This applies also to the salt solution when not in use.

The intravenous administration of "606" consists briefly in puncturing a prominent vein with a suitable hollow needle, allowing a little salt solution to flow into the vein through the needle to make sure that the latter is really inside the vessel, following this up with the amount of "606" solution it is desired to administer; and, finally, running in more saline to clear the needle and its immediate neighbourhood in the vessel of all traces of the remedy. To carry this out we have used various forms of apparatus, including the special syringe invented by Dr. Schreiber, but our present one is simply an elaboration of the old funnel, rubber tubing, and hollow needle which have been used for transfusion purposes for very many years. We still use the latter simple form of apparatus, which Dr. H. W. Bayly[1] saw when he visited us early in December last, on occasions when it is inconvenient to arrange for a stand, but have modified it



for injections given in hospital, because we find that time is saved by having the salt solution and remedy in separate containers, provided the latter can be suspended from a stand. We note that we have quite independently adopted an arrangement which resembles in some particulars that designed by Dr. O. F. F. Grünbaum.

Two glass containers, each to hold 300 c.c., and shaped like the barrel of an ordinary glass syringe, have 4 feet of rubber tubing attached to each, that leading from one container being interrupted by two short pieces of glass tubing which act as windows (see illustration). Into the other end of each rubber tube is inserted one arm of a glass Y-piece. To the stem of the Y-piece is attached another piece of rubber tubing about 6 inches long and also provided with a glass window, and to the other end of this short piece of tubing is fitted a connexion to take the needle. The latter has a calibre a little greater than that of an ordinary hypodermic syringe, from which it differs in having a shorter point, so that there may be no risk of the latter wounding the other side of the vein by any slight movement of the needle while the injection is being given. Each of the three pieces of rubber tubing mentioned is provided with a spring clip so that the flow of fluid through it can be started or shut off at any desired moment. Previously to being used the container, rubber tubing, &c., are sterilised by boiling or autoclaving, and the needle by keeping it stored in spirit.

The apparatus is worked as follows: The containers having been suspended on a convenient stand which is capable of being raised, the two clips on the tubes between the Y-piece and the containers a e opened, while that on the tubing leading from the Y-piece to the needle is closed. Warm, sterile, physiological salt solution is then poured into one of the containers and finds its own level, *viâ* the Y-piece, in the other. In doing so, it imprisons many air bubbles which must be worked out of the tubes by manipulation. Having removed all air bubbles, and with the level of the salt solution standing about an inch from the bottom of each container, the clip is applied to that tube (leading from one of the two containers) which has the glass windows inserted so as to occlude it, and the quantity of "606" solution it is desired to administer is poured into the corresponding container. The other container is filled with warm physiological salt solution. The needle is then attached and the clip on the tube between it and the Y-piece opened so as to allow some salt solution to flow from the last mentioned container through the needle and remove air. This accomplished, the clip is again applied between the needle and Y-piece, and all slack tubing coiled into a shallow vessel containing water at about 110° F., so that the solutions may be warmed as they flow through. Depending on the rate of flow, each particle of solution remains in the rubber tubing for one and a half to two minutes, and, being there exposed to a large cooling surface, it is desirable to warm it just before it reaches the needle.

The patient being in bed, or on an operating table, with the arm supported in a comfortable position, a prominent vein at the bend of the elbow is selected, and the skin over it painted with a solution of iodine in chloroform (1 in 15) to disinfect the operation area. A rubber band is then applied to the upper arm so as to retard the venous return, without abolishing the radial pulse, and the patient made to clench and unclench his fist a few times to make the selected vein stand out well. A little care to distend the vein well in this way sometimes repays trouble, because the shape of the needle-point, though an advantage for reasons already given, does not lend itself to easy penetration of the vein, and if the latter be little supported by surrounding tissues, and half filled, it is apt to slip to one side before the needle. With the needle pointing in the direction of the blood flow, almost parallel with the skin surface, and its eye looking upwards, its point is applied to the skin well over the centre of the vein and pushed steadily on into the vessel. It is better to perform this trivial operation steadily than with a quick movement, such as one can adopt with the ordinary long-pointed needle frequently used for bleeding purposes, because the vein is then less likely to slip to one side or the needle to perforate the other side of it. It must rarely be necessary to expose the vein with a scalpel, since in 186 administrations by this method we have been compelled to do so only once, in a very stout patient. Even in this case we think now that had we taken a little more care to distend a vein well it would not have been necessary, since this patient received a second injection, and the vein was then entered without the use of a scalpel. With experience one knows by touch when the vein has been successfully penetrated, but if it be desired to ascertain this more certainly the containers are previously lowered to a level a little above that of the patient. The appearance of blood at the window between the needle and the Y-piece when the corresponding clip is opened will then confirm one's tactile impression. The containers are then raised, the rubber band on the upper arm removed, and, both clips between the salt solution container

[1] THE LANCET, Jan. 21st, 1911, p. 153.

and the needle being already open, salt solution will commence to flow into the vein. Here, again, it will be noticed that although the salt solution is flowing no swelling happens over the vein such as would occur if the needle were not properly inside the vessel. A little salt solution (about 10 c.c.) having been allowed to flow in this way, the clip on the tube leading from the salt solution container is closed and that on the tube leading from the "606" container opened, when the remedy will commence to flow steadily into the vein. When it has nearly reached the bottom of the container about 20 c.c. of salt solution are poured in so as to help the last few cubic centimetres of "606" solution along the rubber tube. Finally, when the level of the fluid passes the upper glass window the container is raised to increase the pressure, and when the fluid passes the lower window the clip is applied, while that on the tube leading from the salt solution container is opened so as to allow salt solution to wash the needle and the vein wall immediately adjacent free from "606." This done, the needle is removed and a dressing applied.

We can only add that in actual practice the whole operation is not nearly so complicated as would appear from our description. In fact, it is quite usual with us to administer salvarsan in this way to five patients in an hour. The rate of flow of the solution into the vein can be regulated by the height to which the containers are raised. As a rule, about 30 c.c. per minute can be safely given, but some patients cannot deal with this amount in the time and complain of oppression. In such cases the rate is easily moderated, of course, by lowering the containers.

We prefer the transfusion method to the use of a syringe because it is simpler; any part of the apparatus can be improvised from material which is readily obtainable, and this is an advantage, considering that no glassware is immune to breakage. In addition, it is easier to keep the needle in position; in fact, if the rubber tubing between the needle and Y-piece be lightly fastened to the arm with a piece of strapping one need not hold the needle at all while the solution is running into the vein. The advantage of having two containers arranged in this way is that the needle can be washed completely free of salvarsan solution before it is removed from the vein.

The immediate after-effects of an intravenous injection are generally as follows. In a very few cases some nausea, and possibly vomiting, occurs at once, but in the great majority no symptoms make their appearance till from two to three hours later, when in about 50 per cent. of cases there is a feeling of chilliness, which may go on to a rigor lasting an hour or so, and the temperature rises. In our cases of this kind the temperature varied from 100° to 103·2° F., with an average of 102°. In the great majority of our cases any nausea and vomiting which occurred were slight, and all after-effects had disappeared by the next day, but in five there were persistent vomiting and diarrhœa which lasted well into the following day. In two cases vomiting was preceded by faintness which appeared alarming, the pulse being almost imperceptible and the pallor extreme, but these symptoms rapidly passed away after the patients had vomited; each of these patients was in a very debilitated condition. Previous preparation of the patient seems to influence these after-effects, and we advise a saline purge in the morning, restricted fluids, and no solid food for two to three hours previously. For 24 hours subsequently to the injection a very light diet is advisable. On the second day the temperature has been over 100° five times out of the 186 occasions on which we have given salvarsan intravenously, and three times on the evening of the third day, the highest temperature then recorded being 101·4° in one case. The urine was examined in every case on the day following the injection and slight albumin found twice only, and in one the patient had a urethral chancre. Both cleared in a few days. In one of our cases thrombosis of the vein occurred, but caused no inconvenience, and had disappeared a fortnight later. In another case some swelling of the arm developed a few days after the injection. This was probably due to the needle having punctured the deep side of the vein by some accidental movement during the latter part of the injection. The infiltrate subsided in about ten days without having given the patient any inconvenience. With these exceptions we have experienced no local trouble through the intravenous method.

Regarding dosage, in the subcutaneous or intramuscular cases the largest dose we administered was 0·8 grm., the smallest, 0·4 grm., and the usual one, 0·6 grm. For intravenous injection, in ordinary cases of syphilis in men without nerve or visceral complications, we have usually given from 0·5–0·6 grm., according to weight and physical condition, while in cerebral or spinal cases, or in those suffering from marked cachexia, the usual dose has been from 0·2 to 0·4 grm. In our first series of intravenous cases we gave a single injection; in the next series, two injections of the above-mentioned dose at an interval of from two to three weeks; and we have recently commenced a series in which the above initial dose is given, and this is followed, at intervals of two weeks, by three injections of 0·2 grm. each, the object being to prolong the effect over a greater period of time. In framing this programme we have been influenced by certain considerations connected with the excretion of salvarsan after intravenous injection and the possible relation of this to relapses.

Major Beveridge has estimated the daily excretion of arsenic by the kidneys in a number of our cases after intravenous injection, and has found that after a dose of 0·55 grm. the urine becomes free from arsenic in an average of nine days, and, according to present knowledge, this seems the limit of time during which we can rely on the presence of the remedy in the circulation for destruction of treponemata. Relapses after "606" may be due to various causes, the relative importance of which we know very little. Amongst others the following occur to us as worthy of consideration. 1. Amongst the multitudes of treponemata originally infesting the patient, some are resistant to this remedy from the first, and, surviving the injection, procreate a fresh invading host of parasites. 2. Some, being assailed by a dose insufficient to kill them, become resistant. 3. Possibly there is a stage in the life-history of T. pallidum in which it is always "606" resistant; in this case all parasites which happened to be in this stage of development during the presence of the remedy in the circulation would escape extermination. 4. Many may lie protected in thrombi or in parenchymatous cells, and only escape from these later after all the remedy has been excreted. In the absence of light on this question we can only seek the best method of administration on a principle of trial and error, in the hope that one or both of the two last possibilities we have mentioned explain the majority of relapses, and that permanent cure is only a question of ensuring the presence of the remedy in the circulation for a given length of time. Considering the very rapid clinical effects which occurred after the first injection in those of our cases which developed a slough three to four months later, and the large amount of arsenic found at the site of injection at the end of this period, granting that the clinical effects were due to the wholesale destruction of T. pallida, it seems probable that it requires the presence of a very small dose of salvarsan in the circulation to destroy all the treponemata reached by the blood stream, and it is on this principle that we have framed the programme for our latest series of cases.

We have gone into this matter of administration in some detail because it seems to us as unjustifiable to attack this remedy on the score of relapses, before the best method of using it has been discovered, as to have denied the efficacy of quinine in malaria because recrudescences of fever occurred more frequently before its administration was properly understood.

Regarding the effect of salvarsan on the various manifestations of syphilis, the following extracts from our notes may be interesting. In order to compare the effect of the remedy on the separate lesions of syphilis we have noted the time which has elapsed between the injection and the disappearance of each. In 35 cases with primary sore the latter healed completely in an average of 10·5 days each. In 15 of these no secondary symptoms had appeared when the injection was given, and none have yet developed secondaries, though in 13 a period varying from six weeks to five months has elapsed since the injection. In 45 cases which showed secondary ulceration of mouth and throat the lesions had completely disappeared in an average of 8·8 days. Five cases of roseola cleared completely in an average of 10·4 days, 15 of macular rash in an average of 7 days, 11 of papular rash in an average of 6·3 days, 3 of pustular rash in an average of 12 days, and 6 of condyloma in an average of 9 days each. With the exception of the local

treatment to primary sores mentioned below none of these cases received any other treatment whatever.

In all cases of primary sore or condyloma T. pallida were found in great numbers previously, but in none later than 48 hours after injection. Out of 97 patients suffering from the above lesions 7 have relapsed since the injection. In three of these a primary sore was the only lesion, and this has recurred: in one, two months after a subcutaneous injection of 0·6 grm.; in one, 10 weeks after a single intravenous injection of 0·5 grm.; and in the third, 10 weeks after the first of two intravenous injections of 0·5 grm. On account of these relapses we now make it a practice to treat each primary sore locally by excision, cautery, or 30 per cent. calomel ointment, on the principle that many parasites in it may be protected from attack, viâ the circulation, by reason of being embedded in thrombosed vessels. Of the four remaining cases, one had ulceration of the throat, and this recurred three months after a subcutaneous injection of 0·6 grm.; the second originally suffered from ulceration of the tongue, which recurred 10 weeks after a subcutaneous injection of the same dose; the third had ulcerated throat and roseola, both of which recurred four months after a subcutaneous injection of 0·6 grm. into two sites, one of which sloughed; the fourth had ulcerated throat, roseola, and synovitis of the left elbow, all of which reappeared three months after a single intravenous injection of 0·5 grm. Two of these cases had been previously treated by injections of atoxylate of mercury. The above include all the relapses which have so far occurred in our cases, with one exception mentioned later. Four of these relapses were treated with a second injection, and in three the symptoms cleared completely in four to eight days.

In one case of general paralysis with marked delusions an intravenous injection of 0·2 grm., followed by a subcutaneous one of the same dose, caused no improvement; in another case which was less advanced, the patient showed marked improvement in speech after two intravenous injections of 0·2 and 0·4 grm. given at an interval of two weeks, but it is much too early to pronounce definitely on the result. In an advanced case of tabes, with optic atrophy and paraplegia, 0·2 grm. given intravenously failed to improve the eye symptoms, but the injection was followed by distinctly increased power in the legs. In a case of tabes with well-marked signs, some improvement occurred after an intravenous injection of 0·2 grm., so that the patient could walk upstairs with less difficulty and stand for about 30 seconds with eyes closed and feet together. The improvement was only temporary, however, and all the symptoms returned with their original severity. In a very early case of tabes with Argyll Robertson pupil and lightning pains only, the pupil was unaffected and the pains not entirely abolished by two intravenous injections of 0·3 and 0·5 grm. respectively. These are all the cases of parasyphilis we have treated.

In order to test the remedy in cases where mercurial treatment had failed to arrest troublesome or dangerous symptoms, or to prevent frequent recrudescences of the disease, or was badly tolerated, the Director-General, Army Medical Service, invited the medical officer in charge of each military hospital in the United Kingdom to send particulars of such cases, with a view to their transfer to the Military Hospital, Rochester-row, for treatment with salvarsan, and in this way we have had an opportunity of treating 10 cases in which mercury failed to produce any impression, though administered regularly from a very early stage; 22 where the same regular treatment had failed to prevent frequent relapses; 1 in which it failed to produce any impression when mutilating ulceration had well advanced; and 1 which could not tolerate mercury. In all of these cases, with one exception, the injection of salvarsan was followed by the complete disappearance of all active signs of the disease. The exception was a case of ulceration of the larynx and hard palate, with necrosis of bone. The ulceration has completely healed, but the patient's voice is still rather hoarse.

The following brief extracts from the notes on some of our cases may be interesting:—

CASE 1.—Private —— contracted syphilis in June, 1910, and on July 20th developed mild syphilitic iritis of left eye, which cleared up under injections of calomel cream. Weekly injections of mercurial cream continued till August 23rd. On August 16th slight relapse of iritis and mucous patch on the left tonsil. Iritis had disappeared by August 20th, but the patch on the tonsil had become much worse. On Sept. 5th severe relapse of the iritis, which was much worse than on any previous occasion. He was given an intramuscular injection of calomel gr. ½. On Sept. 7th his condition was as follows: Vision of the left eye reduced to hand movements, two large deposits on iris, firm posterior synechiæ, and much lymph on posterior surface of cornea. Vision of right eye, 6/12. Injection of 0·6 grm. "606" subcutaneously. Sept. 8th, severe local reaction in eye, which was much congested and so painful that an injection of morphia was required. Three days after injection nodules on the iris distinctly smaller; counted fingers at 3 feet with left eye. Twenty-six days after injection vision in each eye was 6/12, and he could read D. 6 at 18 inches. Synechiæ remain. No return of eye symptoms up to March 14th, 1911. The mucous patch disappeared in four days after injection. No mercury administered since injection of salvarsan.

In this case the injection of calomel cream given two days previously to that of "606" possibly obscures the issue, but, without wishing to lay too much stress on the effect of salvarsan in this case, it must be remembered that the two relapses of iritis occurred while the patient was fully under the influence of mercury.

CASE 2.—Gunner —— acquired syphilis in June, 1906. Readmitted in December, 1906, for severe ulceration of the throat; two further admissions for relapses between then and August 28th, 1910, when severe iritis commenced, for which he was in hospital for 108 days. At the end of this time he was transferred to Rochester Row for treatment with "606." His previous treatment had included 49½ grains of mercury by intramuscular injection, with variations in the form of hydrarg. perchlor. and hydrarg. c. cret. and potassium iodide by the mouth. His condition on transfer was as follows: Right eye, vision = 6/60, iris irregular, with firm posterior synechiæ; fundus not visible on account of numerous deposits scattered on the posterior surface of the cornea. Left eye, vision = 6/18, otherwise normal. Injection of 0·5 grm. salvarsan intravenously, followed by no reaction. Injection followed by slight improvement. On Dec. 30th, second injection of 0·5 grm. intravenously, followed by severe reaction. One week later, vision of the right eye = 6/24 (2); less lymph on posterior surface of the cornea so that optic disc and retinal vessels seen; no optic neuritis or choroiditis; synechiæ remain. On Jan. 9th, 1911 discharged from hospital with vision of the right eye, 6/18 (2), and reads D = 3. No recurrence up to date. Wassermann reaction, strongly positive on admission, had become ± by day of discharge; blood not received since for further tests.

CASE 3.—Gunner —— contracted syphilis in September, 1908. Treated with regular courses of mercury by intramuscular injection, with intervals of rest, from then till August, 1910, receiving 38 gr. of mercury. In August, 1910, he developed a large indolent ulcer on the left thigh, and on Nov. 28th was admitted to R. Herbert Hospital, Woolwich, for gummatous ulceration of the soft palate and left tonsil. Mercurial injections continued, with potassium iodide by the mouth, with little or no improvement, and mercury had to be stopped on account of symptoms of salivation. Transferred to Rochester Row for treatment with "606," when examination showed large perforating ulcer of the soft palate, embracing part of the left posterior pillar of the fauces and tonsil. Intravenous injection of 0·5 grm. salvarsan. Two days later throat very distinctly better. On Dec. 22nd, 1910, second injection of 0·4 grm. intravenously. Small ulcer still present on the left tonsil, but clean and rapidly healing. On Jan. 14th, 1911, no active signs of syphilis. No recurrence up to Feb. 28th.

CASE 4.—Private —— contracted syphilis in May, 1909. Regular treatment with mercury by injections, as well as at other times by the mouth, from June, 1909, when first admitted for severe ulceration of throat, which healed very slowly under treatment. Spent 440 days in hospital between June, 1909, and October, 1910, having been readmitted seven times for ulceration of the throat. Last admission August 2nd, 1910. In spite of careful local and mercurial treatment throat became steadily worse till Nov. 12th, 1910, when he was reported as "seriously ill." On Nov. 18th feeding by the tube was commenced and continued for a few days. Slow improvement from then to January, 1911, when he was transferred to Rochester Row for salvarsan treatment. His condition then was as follows: The patient was very thin and feeble; very extensive ulceration of the pharynx and epiglottis; voice very indistinct, but the condition of the larynx could not be ascertained on account of much frothy mucus obscuring view. On Jan. 4th intravenous injection of 0·5 grm. salvarsan. Preparations were previously made for tracheotomy should a local reaction at the site of manifestation of the disease, such as sometimes occurs after injection of this remedy, cause œdema glottidis. Injection was followed by severe nausea, faintness, and vomiting, after which he revived. The temperature rose to 100° F. on the day of the injection, and was 102° on the third evening, subsequently being normal. Improvement very rapid from the fifth day after injection. Second injection of 0·55 grm. given intravenously on Jan. 17th and followed by no reaction. Ulcers had completely healed by the eighteenth day after the first injection, and he was discharged hospital on Feb. 3rd with no active signs of syphilis and having gained 18 lb. in weight in 34 days. Wassermann reaction still positive on the day of discharge; no subsequent test has been made as patient (Reservist) has gone to his home.

CASE 5.—Pensioner —— contracted syphilis early in 1900 and was treated by the mouth till secondary symptoms had disappeared. At this time the systematic treatment of syphilis, under which a patient once infected is not lost sight of till pronounced cured or he leaves the service, had not been introduced into the army, and on transfer to another station further treatment depended on the outbreak of fresh symptoms. In this case no further symptoms occurred till April, 1910, when he was admitted to hospital for ulceration of the head, face, and other parts of the body, the number of ulcers being 40. Under treatment with mercury and potassium iodide by the mouth some of the ulcers on the face had commenced to heal by November, but at this time a fresh crop of ulcers had broken out elsewhere, and he was rapidly going downhill. When transferred to Rochester Row on Nov. 24th his condition was as follows: His face was covered with large ulcers; there was complete destruction of a portion of the right side of the nose, with very offensive nasal discharge; large ulcers of the scalp and both sides of the neck; perforating ulcer of the sole of the left foot, and a very large, deep, and offensive ulcer, 3½ inches across, on the inner side of the left ankle; minor ulcers on other parts of the body. Patient very thin and so deaf that he could only hear when shouted at. Intravenous injection of 0·5 grm. salvarsan. One week later the ulcers

on the neck and nose had completely healed and hearing was normal. On Dec. 20th a second injection of salvarsan (0·4 grm.) was given intravenously. On Dec. 31st ulcer on ankle ½ × ⅜ inch; weight 11 st., a gain of 31 lb. Discharged hospital with all ulcers completely healed and feeling quite well on Feb. 11th. Wassermann reaction, strongly positive on transfer, completely negative three weeks later and also negative on the day of discharge.

In this case mercurial treatment did not have a fair trial in the early stages of the disease, but after April, 1910, it failed in the hands of a very experienced officer, where salvarsan succeeded in arresting the progress of lesions which could otherwise have only ended with the death of the patient.

CASE 6.—Private —— contracted syphilis in October, 1910. Treatment commenced with three injections of calomel cream (gr. ¾ each), followed by injections of mercurial cream (mercury gr. 1 in each) at weekly intervals. After two of the latter had been given severe ulceration of pharynx, with secondary rash, occurred, and albumin was noted in the urine. One more injection of mercurial cream (mercury gr. ½) was given and its effect on the amount of albumin carefully noted. Albumin markedly increased on the day after the injection, and mercurial treatment was temporarily suspended. Œdema of the face and ankles followed, with diminished urine and greatly increased albumin, while ulceration of the pharynx became very severe. General measures for nephritis having failed to cause any improvement, and an injection of mercury salicylate, gr. 1½, having been followed by some aggravation of the symptoms, 0·5 grm. salvarsan was given intravenously on Jan. 23rd, 1911. The following day there was no albumin in the urine; on the third and fourth days albumin was very slight, and since then a very slight amount of albumin has been found every third or fourth day, its presence being indicated by a slight haze on boiling. The urine has increased in amount and the œdema entirely disappeared. The throat commenced to heal from the second day, and by the time a second injection of 0·5 grm. was given intravenously, 14 days later, there was no clinical evidence of syphilis. Wassermann reaction, strongly positive on the day of the first injection, was still positive on the fourteenth day, but completely negative four weeks after the first injection.

TABLE I.—*Wassermann Reactions before and after Subcutaneous Injection of Salvarsan.*

	As tested by the original method.							As tested by Stern's modification.							
Weeks after injection.	Reaction positive before injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Reaction returned to positive after becoming negative.	Reaction negative before injection.	Remained negative.	Became positive.	Reaction positive before injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Reaction returned to positive after becoming negative.	Reaction negative before injection.	Remained negative.	Changed to positive.
1–2	17	13	1	3	0	10	9	1	26	17	7	2	0	1	0	1
2–3	15	8	3	4	0	9	8	1	16	13	3	0	0	2	1	1
3–4	10	4	4	2	0	2	1	1	11	9	2	0	0	0	0	0
4–5	15	4	1	8	2	5	5	0	18	8	5	5	0	2	1	1
5–6	7	1	1	5	0	5	4	1	11	3	3	5	0	0	0	0
6–10	31	4	0	25	2	9	8	1	36	11	3	19	3	3	3	0
10–14	24	0	2	21	1	7	6	1	31	7	2	19	3	0	0	0
14–18	28	3	1	18	6	7	7	0	30	8	1	10	11	2	2	0
18–26	7	0	0	4	3	3	2	1	10	0	0	6	4	0	0	0

TABLE II.—*Wassermann Reactions before and after a Single Intravenous Injection of Salvarsan.*

	As tested by the original method.								As tested by Stern's modification.							
Weeks after injection.	Reaction positive before injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Reaction returned to positive after becoming negative.	Reaction negative before injection.	Remained negative.	Became positive.	Reaction positive before injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Reaction returned to positive after becoming negative.	Reaction negative before injection.	Remained negative.	Changed to positive.
1–2	4	2	1	1	0	1	1	0	5	5	0	0	0	0	0	0
2–3	6	1	4	1	0	2	2	0	8	7	0	1	0	0	0	0
3–4	4	0	1	3	0	1	1	0	5	2	1	2	0	0	0	0
4–5	2	0	0	2	0	1	1	0	2	0	0	2	0	0	0	0
5–6	3	0	0	3	0	0	0	0	3	0	1	2	0	0	0	0
6–10	10	0	0	9	1	4	4	0	13	1	3	7	2	0	0	0
10–13	8	0	0	7	1	1	0	1	8	0	0	8	0	0	0	0

TABLE III.—*Wassermann Reactions before and after Two Intravenous Injections of Salvarsan.*

	As tested by the original method.								As tested by Stern's modification.							
Weeks after first injection.	Reaction positive before injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Returned to positive after becoming negative.	Reaction negative before injection.	Remained negative.	Became positive.	Reaction positive before first injection.	Remained positive.	Reaction became weaker.	Reaction became negative.	Returned to positive after becoming negative.	Reaction negative before first injection.	Remained negative.	Changed to positive.
1–2	14	9	4	1	0	5	5	0	12	9	1	2	0	2	1	1
2–3	9	6	2	1	0	5	5	0	10	6	3	1	0	1	1	0
3–4	12	4	3	5	0	2	2	0	11	8	2	1	0	2	2	0
4–5	8	2	1	5	0	1	1	0	6	1	2	3	0	1	1	0
5–6	7	1	0	6	0	1	1	0	5	1	2	2	0	0	0	0
6–10	9	1	0	8	0	2	2	0	9	1	1	7	0	2	1	1
10–11	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0

CASE 7.—Private —— contracted syphilis early in 1907 and treated with seven courses of mercury cream by intramuscular injection, receiving 40 grains of mercury in this way, two courses of soamin, gr. 50 each, and two of mercury atoxylate, gr. 10½ each, as well as inunctions of mercury at various times. Throughout treatment there was constant recurrence of syphilitic lesions, chiefly affecting the mouth. On Oct. 8th, 1910, admitted with tongue fissured and ulcerated, and mucous patches on the buccal mucous membrane. On Oct. 10th he was given an intramuscular injection of salvarsan (0·6 grm.), which was followed by severe local reaction, and a slough formed at one of the two sites of injection 12 days later. Improvement in the mouth and tongue commenced from the third day, and on Nov. 12th no signs of syphilis were apparent. No recurrence up to Feb. 28th, 1911, but Wassermann reaction still strongly positive.

CASE 8.—In an early case of syphilis which developed anterior poliomyelitis, with paralysis of muscles of both legs, wasting and reaction of degeneration of extensor group, all of which took one month to develop, the patient was able to lift his legs easily from the bed three days after an intravenous injection of 0·4 grm., and six weeks later could walk without the aid of a stick, though the extensors of the right leg were still very weak and there was no return of the patellar reflex. In this case the improvement continued till three months after the injection, when he suddenly developed paresis of the tongue, chiefly affecting the right side, so that he could not protrude it; there was also some paresis of the right external rectus, and his manner became curious. These symptoms passed off in two days with the exception of the mental ones. Space will not allow us to describe this interesting case more completely, and he is only mentioned here to complete our list of relapses.

One of us (L. W. H.) has tested the blood of our cases before the first injection and, as far as possible, at regular intervals after, and the results of the 883 reactions obtained are shown on the accompanying tables, in which the results obtained after each method of administration are shown separately. The results of the test for the Wassermann reaction which different observers have obtained after the injection of "606" have varied very widely, one worker showing 100 per cent. of negatives, and another only 25 per cent. Possibly the differences are explained by the different techniques adopted, and it seems desirable that in all cases some particulars of this should be stated. In explanation of the attached tables, the tests were conducted by the original method as well as by Stern's modification, which, as will be seen from the results, is more delicate than the original. The "antigen" used was an alcoholic extract of syphilitic infant's liver, which deviates 0·1 c.c. complement when in a combination of 0·03 c.c. extract and 0·2 c.c. inactivated serum of a florid syphilitic. It was used in a strength of 0·2 c.c. for the original and 0·03 c.c. and 0·06 c.c. for the Stern test. The patient's serum was inactivated by heating a small quantity (0·4 c.c.) of it at 55° C. for ten minutes only, as this has been found to result in a much more delicate test than when the serum is heated for the usual half hour. To form an estimate of the strength of the reaction in the case of each test two quantities of complement, 0·1 c.c. and 0·2 c.c., were used in the case of the original and two quantities of extract in that of Stern's modification. Deviation of 0·2 c.c. complement in the case of the original and with 0·03 c.c. extract in the case of the Stern test were counted as the stronger reactions. In the accompanying tables the numbers of sera which showed a weaker reaction after treatment with "606" are shown in a separate column under each test and are made up of those which, in the case of the original, deviated the stronger amount of complement before the injection and subsequently the weaker amount only, or at first deviated only the smaller amount and subsequently became ±. In the case of the Stern test those which at first showed deviation with the smaller amount of extract and subsequently deviated with the larger amount only are included in this category. It will be noted that a certain proportion of the sera which subsequently to the injection gave a negative reaction returned to positive at some time later.

We have related our experience with salvarsan more as a contribution to the evidence for and against this remedy than as a preliminary to the expression of any judgment on our part as to the position which it will occupy eventually in the therapy of syphilis. Any such judgment would, in our opinion, be entirely premature at this stage. Meantime our results seem to justify the following conclusions:—

1. Salvarsan has a very marked and rapid effect on the clinical manifestations of syphilis in most cases.

2. This effect is due to its action on the parasites, and is not simply a cloaking of symptoms, as is shown by the disappearance of treponemata from local lesions and the effect on the Wassermann reaction.

3. It is impossible to say at present whether this effect consists in destruction of the whole or only part of the parasites, or simply in suppression of their activity.

4. The risk in using it being so slight, no judgment against it will be justifiable till every method of administering it has been worked out.

We desire to acknowledge our great indebtedness to Major Beveridge, R.A.M.C., for the very many careful chemical analyses he has made for us, and to Lieutenant A. S. Cane, R.A.M.C., for his invaluable assistance in the notes on the cases.

THE DIAGNOSIS OF GASTRIC CARCINOMA BY THE CLEAVAGE OF POLYPEPTIDES.

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Neubauer and Fischer (1) have proposed a laboratory test for the further assistance of the clinician in his diagnosis of cancer of the stomach. It consists of the action of gastric contents upon a polypeptide. From several quarters certain criticisms have emanated, and we ourselves are not disposed to agree entirely with the basis upon which the reaction rests, nor to regard it as specific. In spite of this, however, in connexion with an investigation upon the peptide-splitting action of pathological fluids, the test has, in our hands, yielded results suggesting an advocacy for that extended use which alone can determine its permanent utility.

Method.

We perform the reaction in the following manner (modified from Neubauer):—

1. An Ewald test breakfast is given on a presumably empty stomach, and withdrawn 1 to 2 hours later. It is best to syphon off the contents and to avoid any undue manipulations with the tube. Much intra-gastric movement may lead to reflex regurgitation of duodenal fluids.

2. The stomach contents are filtered. The residue and filtrate are tested for the presence of blood, bile, trypsin, and tryptophane. If any of these are present the material is discarded.

3. One part of the filtrate is added to a solution of glycyl-tryptophane,* covered with toluol and incubated for 12–24–48 hours at 38–40° C.

4. A second portion of the filtrate is incubated for the same period with the addition of toluol, but without the dipeptide (control for tryptophane formed during incubation).

5. A tube containing glycyl-tryptophane and toluol is also incubated at 38–40° C. for 12–24 hours (control for free tryptophane in the polypeptide solution).

6. To each portion of the incubated filtrate and the control a mixture of bromine water, 3 parts, and acetic acid (5 per cent. in water) 1 part, is added drop by drop. In the presence of free tryptophane, a lilac colour develops when a sufficiency of bromine water is added (6). This colour disappears when bromine is present in excess, the mixture becoming yellow in colour. In the absence of free tryptophane the fluid assumes a pale yellow tint.

Fallacies.

These are related chiefly to the presence of substances which decompose, or inhibit the decomposition of, the polypeptide.

Vomits cannot be used for the purpose, since regurgitated duodenal enzymes are frequently present; they may also contain free tryptophane, or yield it upon incubation. Post-mortem gastric contents are similarly useless.

Bile.—Although bile itself is unable to break up the dipeptide glycyl-tryptophane, its presence is indicative of the back flow of duodenal fluid containing proteolytic ferments. When either the residue or the filtrate gives a reaction for bile, the gastric contents are discarded and another test-meal given.

* This is supplied by Messrs. Kalle of Biebrich (and their London agents, Zimmermann) in small bottles ready for use.

Blood.—The presence of blood vitiates the test. When 1 c.c. of glycyl-tryptophane is used for the reaction, so small a quantity as 0·2 c.c. of blood effects a cleavage of the peptide (2). When equal quantities of glycyl-tryptophane and blood are employed, 0·01 c.c. of blood suffices to yield free tryptophane. If the residue or the filtrate contains traces of blood the specimen is rejected.

Reaction.—The total acidity and the free HCl must be estimated prior to adding the glycyl-tryptophane. The power of the gastric contents to split off the amino-group is inhibited by 0·18 per cent. HCl or 0·2 per cent. Na_2CO_3, after incubation for 24 hours. The reaction of the content should be brought within these limits.

Bacteria.—The solution of glycyl-tryptophane is kept sterile in sealed capsules, as certain bacteria are able to set free the tryptophane.

Time.—We have obtained a positive result in 10 hours, and as late as 48 hours. Each specimen is a law unto itself. It is advisable to withdraw portions of the incubated fluids at stated intervals, and to consider the reaction as negative only when 48 hours' incubation does not yield free tryptophane. It is scarcely necessary to add that for the longer period of incubation the reaction limit calls for special attention.

Results.

These may be stated in tabular form:—

Positive Results.

Confirmed by Operation or Necropsy.

Diagnosis.	Acidity.	Diagnosis.	Acidity.
Gastric carcinoma	43	Gastric carcinoma	0
,, ,, ...	45	,, ,, ...	0
,, ,, ...	26	,, ,, ...	0

Clinical Diagnosis.

Gastric carcinoma	75	Malignant liver	0
,, ,, ...	0	Undiagnosed	10

Negative Results.

Confirmed at Operation or Necropsy.

Diagnosis.	Acidity.	Diagnosis.	Acidity.
Endothelioma peritoneum	60	Gastric ulcer	37
Gastric carcinoma	30	,, ,, ...	59
Pyloric carcinoma	113	Pyloric stricture	0
Gastric ulcer	40	,, carcinoma	20

Clinical Diagnosis.

Gastric ulcer	30	Gastritis	140
Gastritis	30	Carcinoma	70
,, ...	54	,, ...	75
,, ...	27		

Miscellaneous with Gastric Symptoms.

General paralysis, necropsy	43	Rheumatoid arthritis, clinical	10
Typhoid fever, Widal	70	,, ,, ,,	21
Pernicious anæmia, necropsy	33	,, ,, ,,	0
Hepatic cirrhosis ,,	70	Pyorrhœa alveolaris, ,,	13

Results to Date—Confirmed.

—	Positive. Carcinoma	Other conditions. +	Other conditions. −	Negative. Carcinoma.
Neubauer	6	0	26	1
Weinstein	11	0	18	0
Lyle and Kober	6	0	7	0
Own	6	0	16	3
Total	29	0	67	4

Criticisms.

1. Choice of meal. Meat meals permissible.

2. The presence of polypeptide not necessary.

It has been stated (3) that it is not necessary to restrict the choice to an Ewald test meal; that a meat meal serves the same purpose; that a meat meal is preferable since the dipeptide may be dispensed with (as the meat protein derivatives yield tryptophane when acted upon by the gastric contents of carcinoma). That these statements are difficult to sustain is evident from the following table:—

Various Meals. No Dipeptide Added.

Cases.	Before incubation. Ewald.	Before incubation. Meat.	24 hours' incubation. Ewald.	24 hours' incubation. Meat.
Confirmed positive.				
Carcinoma	−	−	−	−
Pyloric cases	−	−	−	+
Confirmed negative.				
Gastritis	−	+	−	+
,, ...	−	−	−	−
Gastric ulcer	−	−	−	+
Arthritis	−	−	−	+

Two ordinary dinners gently warmed with 2 per cent. HCl gave a positive tryptophane reaction.

The figures show that tryptophane does not appear in Ewald test meal contents either before or after incubation. It does occur before and after incubation when a meat test meal is given, and does not show any relation to cases of carcinoma. The test is, therefore, valueless when the polypeptide is not added to the gastric contents.

3. *The presence of blood is not a contra-indication to the carrying out of the reaction.*—We have shown elsewhere (2) that blood serum and exudates and transudates, &c., possess the power of decomposing the dipeptide, glycyl-tryptophane. In their original description of the reaction, Neubauer and Fischer lay special stress upon the necessity for excluding the presence of blood in both residue and filtrate. How far by the usual tests for occult or other form of hæmorrhage it is possible to exclude lymph or cell products is a question of vital interest from the theoretical standpoint. The consideration of this question may be relegated to a later communication. The essential point is, that the presence of minute traces of blood vitiates the reaction.

4. *Trypsin may be present even in the absence of bile, decompose the dipeptide, and so render the result valueless.*—This has not been our experience, as the following instances show:—

Bile and Trypsin.

Material.	Number.	Bile.	Ferment.
Vomit.	9	+	+
	6	+	−
	7	−	−
Test meal.	2	+	+
	2	+	−
Post-mortem content.	5	+	+
	3	+	−
	1	−	+

Coagulated blood serum plates used.

But Ohrl and Schittenhelm (5), however, when investigating the conditions associated with the regurgitation of duodenal contents into the stomach, found trypsin present in two out of a large number of cases, so that this objection must receive due weight by those who carry out or interpret the reaction. A lowered acidity of the contents or anacidity may reflexly occasion a regurgitation of trypsin. These factors should be borne in mind when devising the alterations necessary for the minimising of this fallacy. Careful removal of the gastric contents (see method) appreciably diminishes this fallacy.

Until a large number of results are accumulated we cannot say what is the real value of this reaction, but the guidance we have so far obtained has been somewhat striking. Further work may, perhaps, simplify some of the technical procedures and indicate means for the better avoidance of some of the fallacies. Kuttner and Pulvermacher (7) have already tried the substitution of "seiden-peptone" for the glycyl-tryptophane; their method presents some advantages, but is

more tedious to carry out, and the results to date are not encouraging.

While the object of this note is to suggest a wider use of this test, it would be unfair to withhold the comment that it has yet to be demonstrated that the endo-enzymes of cancer cells possess abnormal characters and activities. Still, several clinical tests whose theoretical bases have been doubted have proved of value in diagnosis.

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Bristol.

THE IODINE METHOD OF STERILISING THE SKIN.

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THE iodine method of preparing the skin before operation has now been widely adopted, and undoubtedly gives excellent results. Whether the skin is really sterilised by this means can only be determined by bacteriological examination. The following investigations were undertaken with the view of determining this point. One of us (P. T.) has employed this method for over two years. At first tincture of iodine was used only as a final application immediately before the incision, the skin having been prepared and compressed in the orthodox manner on the previous day. For about the past 12 months, however, the preliminary compressing has been omitted, the solution of iodine being the only antiseptic used in the preparation of the patient's skin. In certain of the present series of cases the B.P. tincture (2½ per cent.) has been employed for this purpose, and in others the following solution: iodine, grms. 30; potass. iodid., grms. 40; aq. dest., 500 c.c. Before using this is diluted with an equal volume of methylated spirit, so that the strength of the solution is 3 per cent.

There is some difference of opinion as to whether preliminary shaving of the skin is desirable. Personally, I think it is better to do so, at any rate in adults, when the incision is to be made in the groin, the abdomen, or where much hair is present. The skin was shaved in all the cases mentioned below, and it is interesting to note that of the three cases that were not sterile one was very indifferently shaved, while in another a hair about half an inch long was attached to the minute piece of skin sent for bacteriological examination. It is here necessary to emphasise the fact, which has been insisted upon by other writers, that for the satisfactory action of the iodine it is essential that the skin shall be dry. Shaving should thus be carried out with a sharp razor without lathering the skin or, if soap and water are used, the skin must be subsequently dried with a pad or towel and then washed over with ether and again dried before the iodine solution is applied.

In acute cases the whole process is carried out on the operating table after the patient has been anæsthetised. In ordinary cases, to avoid a mess in the theatre, the preparation is carried out in the ward. The iodised area is then covered with a pad or towel. Before commencing the operation a second application of the iodine solution is made, the skin being now in a thoroughly dry condition. In the 32 cases quoted below and prepared in this manner, a thin strip of the whole thickness of the skin was removed immediately after the first incision and conveyed to the laboratory in a sterilised test-tube plugged with cotton-wool.

The investigation consisted in cultivating the piece of skin in nutrient broth for a period of 72 hours. At the end of 24 and 48 hours respectively the culture was looked at, and at the slightest suspicion of turbidity "hanging drop" preparations were made and examined. If the fluid remained clear the cultivation was allowed to proceed until 72 hours had elapsed, when it was always examined, both macroscopically and microscopically. In the cases in which micro-organisms were present nutrient agar tubes were inoculated from the broth and the particular bacterium further studied and identified. In no case did the culture show the presence of contaminating organisms from the air.

Table showing the Results of Bacteriological Investigations.

No.	Nature of disease or operation.	Result.
1	Acute appendicitis.	Sterile.
2	Adenoma of thyroid.	,,
3	Parenchymatous goitre.	,,
4	Radical cure of inguinal hernia.	Growth of a few cocci, subsequently identified as staphylococcus albus, detected on the third day.
5	Gall-stones.	Sterile.
6	Amputation of septic finger.	,,
7	Appendicectomy.	,,
8	Radical cure inguinal hernia.	,,
9	Excision of breast.	,,
10	Varicose veins.	,,
11	Radical cure femoral hernia.	,,
12	Strangulated umbilical hernia.	,,
13	Varicocele.	A pure growth of staphylococcus albus.
14	Lipoma (scapular region).	Sterile.
15	Tuberculous ankle.	,,
16	Acute appendicitis.	,,
17	Branchial cyst.	,,
18	Radical cure inguinal hernia.	,,
19	Cystic adenoma of breast.	,,
20	Carcinoma of breast.	,,
21	Enlarged cervical glands.	,,
22	Varicocele.	A growth of staphylococcus albus appeared after 48 hours' incubation.
23	Radical cure inguinal hernia.	Sterile.
24	Thyroid cyst.	,,
25	Mammary cyst.	,,
26	Radical cure inguinal hernia.	,,
27	Wiring fractured patella.	,,
28	Appendicectomy.	,,
29	Radical cure inguinal hernia.	,,
30	Unreduced Colles's fracture.	,,
31	Radical cure inguinal hernia.	,,
32	Mastoid abscess.	,,

All the above cases healed by primary union with the exception of those acute cases in which drainage was necessary. In none did the iodine produce any dermatitis. Though the incisions were made in very varied situations it is interesting to note that in the 3 cases in which the skin was infected the wound was in the groin. Indeed, in 9 such cases organisms were present in 3. In each case the organism present was staphylococcus albus and, as the wounds healed without any suppuration, the infection would not have been of a serious nature. How do these results compare with those obtained after preparation of the skin by antiseptic compresses?

Mr. Lockwood in the last edition of his book on "Aseptic Surgery" (1908) quotes the following three series of experiments: (1) the skin of the groin was sterile in 5 cases and septic in 6; (2) the skin of the scrotum was sterile 8 times and septic 6 times; and (3) in 45 tests, the skin being taken from incisions in various regions, 41 were sterile and 4 only were septic. Contrasting these results with the present series, it appears that the iodine method of sterilising the skin is at least as effective as the older and more troublesome method of preparation.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF STRANGULATED HERNIA OF THE APPENDIX VERMIFORMIS.

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ON Dec. 18th, 1910, at 6 P.M., a male infant, aged 10 days, was admitted to the Salford Royal Hospital under my care. The mother stated that the child had not shown any signs of being ill, and had it not been for the fact that she noticed some swelling and redness of the scrotum she would not have suspected that anything was wrong. The child was breast-fed and had taken his "feeds" well. There had been no vomiting, and a good motion of the bowels had occurred on the morning of the day of admission. He was an ill-nourished baby of normal dimensions, and he lay curled up and quiet, but on being disturbed, as when the legs were straightened out, commenced to give out a series of the short exhausted cries which are so typical of infants subjected to some acute abdominal disaster. The right side of the scrotum was slightly swollen, œdematous, and of a bright red colour. The mother was not able to say how long the swelling had been present, but she had only noticed the redness whilst bathing the child in the morning. The right inguinal region was prominent and of the same bright-red tint. On palpating the scrotum the right testicle seemed to be somewhat larger than its fellow, and the scrotal integuments pitted deeply on pressure. The diagnosis was by no means obvious, and it was left between torsion of the right testis and the condition actually found.

An inguinal incision of 1½ inches was made, and a sac was exposed containing the lower inch of the appendix, which was strangulated and quite gangrenous. The internal abdominal ring was freely exposed, and the obstruction, which was at the ring, divided. The healthy remainder of the appendix was drawn down so that its base was accessible and the usual method of appendicectomy, with invagination of the stump, was performed. The cæcum was found to be very mobile, a condition frequently met with in these cases.

Some writers have stated that diagnoses of strangulated hernia of the appendix are very often incorrect, and that the real lesion present is appendicitis occurring in a hernial sac. In this case, however, the fact that the appendix above the tight constriction was perfectly healthy leaves no room for doubt as to the true condition present. The sac was separated with some difficulty from the œdematous tissues, ligatured and removed, and the inguinal canal was repaired with chromic gut sutures. No drainage was employed, and the wound healed by first intention.

The case is, of course, not an example of a rarity, but the very early age of the patient and the doubtful diagnosis make it interesting and instructive.

Manchester.

NOTE ON A CASE OF NODULAR FIBROMYOSITIS.

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WITH reference to Dr. W. H. Maxwell Telling's most valuable paper on "Nodular" Fibromyositis in THE LANCET of Jan. 21st, p. 154, the following notes of a case may be of interest.

The patient, aged 52, unmarried, with a history of both articular and muscular rheumatism of many years, was convalescent last May from a severe attack of bilious remittent malaria, associated with the presence of malarial crescents in the blood, and treated by rectal injections of quinine sulphate in acid solution. During the first week of convalescence, whilst one day rising from a chair, she was seized with acute pain in the lumbar region; being unable to stand, she sat down on the ground and was lifted into bed. When seen half an hour later the following conditions were found. Skin hyperæsthesia and pain on pressure into the muscles over the lower part of the lumbar region, especially marked on the right side. Movement of the hip-joints was without pain except in the lumbar muscles; and there was no pain along the distribution of the right sciatic nerve on extending it. On picking up the skin with the subcutaneous tissue in folds and rolling it over the subadjacent muscles, three extremely painful nodules, the foci of the pain, were palpable, lying over the aponeurosis. These lay exactly under the surface markings of the first and second posterior sacral foramina of the right side and second posterior sacral foramen of the left side. The upper right nodule was of the size of a large filbert; the other two were slightly smaller.

Cocaine hydrochloride, ½ grain, was dissolved in 30 minims of spiritus rectificatus, and 10 minims of the solution were injected into each nodule deeply. This procedure gave considerable relief, but only for some eight or nine hours. Subsequently a large, hot dressing of antiphlogistine was applied daily over the whole lumbar and sacral region. Thorough rubbing several times daily with iodine (1 part in 10 parts of oleic acid) was then resorted to, and the "lumbago" gradually disappeared. The patient is now (Feb. 7th) in fair health, but all three subcutaneous nodules are still palpable, and are a little tender on pressure.

Malarial neuritis, which one has read of, but not seen, was too imaginative a diagnosis. The patient was, of course, firmly convinced that the nodules were "glands," though one is not aware of any lymphatic glands in that situation. Quinine per os was taken daily during convalescence and subsequently.

Jhansi, India.

OPERATION AT SEA ON A CASE OF STRANGULATED HERNIA.

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DURING the time I was surgeon on the R.M.S. *Orsova* on her maiden voyage to Australia, shortly after leaving Marseilles I was called to one of the quartermasters early in the morning, and found a tense round tumour protruding from the inguinal canal into the scrotum. On applying taxis no result was obtained. Ice-bags were then applied and renewed for some time. Taxis was again applied with negative results. Chloroform was administered and another attempt at reduction was made, this also failing. Late in the evening the patient commenced vomiting and had a dry, brown, furred tongue, with a rapid pulse (150).

An immediate operation was decided upon and Dr. A. Corbyn, a saloon passenger, kindly administered the anæsthetic. After strict aseptic preparations, I cut down upon the hernia, successfully reduced it, and performed a radical cure. The wound healed by first intention.

The patient, it was gathered, had first suffered from hernia seven years ago, being then advised to wear a truss. This he had done till about 12 months previously to the present occasion, when, believing himself to be cured, he had discarded it. During the time of operation the ship was steaming at full speed, yet the man, making an uninterrupted recovery, was back at the wheel within four weeks.

Bude, N. Cornwall.

ASSOCIATION OF CERTIFICATED DISPENSERS.—The fifth annual meeting of the Association of Certificated Dispensers was held in the court room of the Apothecaries' Hall, Blackfriars, E.C., on March 9th, Mr. Montagu Smith, Lewisham Infirmary, presiding. There was a large attendance, the majority of those present being engaged in one or other of the public services. A satisfactory balance sheet was presented. Mr. A. Howell, honorary secretary (Dalston Dispensary), read his annual report, in which it was stated that the association continued to increase in influence and numerical strength, the number of members on the books being about 450, while the extension of the Local Government Board's orders to the Metropolitan Asylums Board service was instanced as a result of the association's activity and alertness. The meeting then re-elected for the ensuing year the three principal officers.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Cases.

A MEETING of this section was held on March 10th, Sir ALFRED PEARCE GOULD being in the chair.

Mr. RICKMAN J. GODLEE showed two unusual cases of Thyroid Tumour. The first was a very chronic soft recurrent growth, the patient being a married woman, aged 54 years, who was admitted to University College Hospital in October, 1905. Four years before a small lump, of the size of a nut, had been noticed in the left lobe of the thyroid. On admission there was a mass 4 inches by 3 inches, reaching down to the sternum and pushing the trachea over to the left. It was soft and elastic and constricted in the middle by a transverse furrow. It was taken for an ordinary adenoma. It was removed through an S-shaped incision. On dividing the thin capsule very free bleeding occurred, so its outer border was quickly exposed, and some large vessels were secured. The tumour was then without delay turned inwards and shelled out without difficulty and cleanly from the gland on the inner side. But she lost a good deal of blood and was much collapsed. She, however, recovered uneventfully. Microscopically the structure of the tumour was said to be much the same as that of normal thyroid tissue, but rather more cellular. She returned in January, 1907. In the isthmus there was a hard lump rather larger than a Barcelona nut attached to the trachea, and several soft swellings occupied the right side of the neck, apparently glands, which had been first noticed in December, 1906. The glands were removed without difficulty and were found to be full of a soft growth. The apparently hard tumour in the isthmus was also really soft and broke on attempting to remove it, so the remainder was scraped away with a sharp spoon. The wound healed rapidly. The growth consisted of closely packed spheroidal cells with fine intercellular stroma, which in most places was occupied by capillaries and small blood-vessels. Scattered through the section were seen round or oval spaces lined by a single layer of cuboidal cells resembling those of thyroid tissue, most of them empty, but a very few containing colloid material. Some parts of the section showed tissue like that of lymphatic gland. Recurrence had gradually occurred in the glands on both sides of the neck, which was now occupied by large, rounded soft masses, which were moveable, but which, except from their size, caused the patient no inconvenience. A free administration of thyroid extract had not appeared to influence their growth, which was very slow. Notwithstanding the extreme chronicity of the case, it seemed doubtful if any further operation were justifiable.

Mr. GODLEE'S second case was one of Extensive Aberrant Thyroid Tumours cured by partial removal and administration of thyroid extract. The patient was a man, aged 29 years, who was admitted in June, 1908, with an extensive swelling of apparently soft glands on the right side of the neck; one larger than a large walnut was situated behind the jaw, and there was a similar lump beneath and behind the sterno-mastoid, reaching down to the clavicle. The thyroid appeared to be normal. The swellings had been coming for two or three years, and had caused slight pain. The patient had never had such swellings before. It was supposed that they were tuberculous glands, but they had more the appearance of lymphadenoma. On exposure at operation on June 6th the veins on the surface at once suggested thyroid tumours. They were all easily cleared on the outer aspect, but all were adherent on the under surface to the deep vessels by dense fibrous adhesions, which it was necessary to cut through, unless the carotid arteries, the jugular vein, and the accompanying nerves had also been removed, which was, of course, out of the question. Accordingly, when the operation was completed a hard mass as thick as the thumb was left, extending from the mastoid process to the clavicle, and no hope was entertained that further development would not occur. There was apparently no attachment to the thyroid gland, which appeared to be normal. The mass on section looked like rather brown thyroid tissue, but in the deeper parts were some masses of yellowish-white material, tougher in consistence than the rest. A microscopical section showed that the greater part consisted of tissue resembling that of the thyroid, but there were in some parts masses of small round cells. He was at once put on thyroid extract, which he continued to take for some time, and this was followed by a complete disappearance of the hard mass, and he wrote that there had been no recurrence up to the present time, that was two and three-quarter years since the operation. Mr. Godlee said that he showed these cases together, not because they were similar, but because they were both thyroid tumours and both peculiar. The first was exceptional because it was evidently a malignant growth, but the malignancy was of a very mild type. There was none of the rapid adhesion to surrounding parts, and even now, after ten years, there was very little interference with the patient's comfort or with her general health. The second was still more remarkable, because it could hardly be looked upon as a case of aberrant thyroids. The mass clinically had all the appearance of a malignant tumour. But a very incomplete removal, accompanied by the exhibition of thyroid extract, had apparently been followed by a complete cure.

Mr. C. H. PRING and Mr. ARTHUR H. EVANS showed a case of Graves's Disease and described the treatment, first by medical methods and later by excision of one of the lobes and the isthmus of the thyroid gland. The patient, a woman, aged 45 years, first sought advice in April, 1908, on account of various nervous symptoms—headache, tremblings, and excitability, with flushings. These were attributed to the menopause and treated accordingly. Improvement resulted. The patient's weight was then 8 st. 12½ lb. In May and June, 1909, she was again suffering from vaso-motor disturbances, profuse sweatings, tremor, and rapid cardiac action, but no complaint of the thyroid gland was made and no alteration in it noticed. Belladonna and potassium bromide were given and opium later to control diarrhœa, which commenced about this time. Neither of these drugs was of much use. Phosphate of soda was given without any good effect. The patient's weight was 8 st. 6 lb. In February, 1910, the gland was first noticed to be enlarged. Thyroid extract was given and apparently did more harm than good. Rest in bed was ordered; arsenic and ergot were tried internally, with local applications of iodine in various forms. The enlargement subsided for a few weeks, but then reappeared, and suffered no further diminution in size. There was no exophthalmos, but the rapid cardiac action, trembling, sweating, and diarrhœa were increased, and gave rise to considerable anxiety. Loss of weight continued (7 st. ½ lb. in July, 1910). Suprarenal extract was given, and the changes were rung on all the drugs recommended, but in no single instance was any good effect seen. In August, 1910, the patient was very ill and went to Broadstairs for a month. After her return she was exceedingly emaciated, the pulse was very rapid and irregular, there was commencing exophthalmos, the diarrhœa was persistent, and her condition altogether caused the gravest fears. Her weight had fallen to 6 st. 7 lb. It was obvious that unless some radical change could be made in her condition the patient would not live many weeks, and although the gland was by no means large the question of operation arose. Mr. Evans saw the patient on Oct. 7th, 1910. The pulse was then 130 and irregular; the heart's impulse was "bounding"—there was no cardiac murmur; she had marked tremors; her weight, which originally was 9 st. 2 lb., when taken two weeks ago was 6 st. 7 lb. There was no obvious exophthalmos, but slightly marked von Graefe's sign. She felt as if she "could not get her breath," and if she happened to be in a hot room she had to "come out gasping." The vocal cords moved freely, and the trachea showed no indentation. On Oct. 13th there was marked augmentation of the symptoms. She had obviously wasted, and she weighed not more than 6 st.; the right lobe of the thyroid had increased in size, and the left was beginning to enlarge; the pulse was very irregular and uncountable at the wrist, but listening over the heart it was reckoned at 148 and 152 per minute; there was marked pulsation in the neck. The following day the right lobe and isthmus of the thyroid were excised. The anæsthetic was given by Dr. Cecil H. M. Hughes and the patient occasioned him no anxiety. There was nothing worthy of note as regards the operation save that there was a good deal of trouble in

"shelling out" the thyroid, the loose (veal-like) connective tissue, out of which the thyroid is usually shot with a sweep of the finger, being more fibrous and more firmly adherent to the surface of the gland than usual, so that some vessels were torn in the separation. The gland was so adherent to the upper rings of the trachea that the gland in that situation was torn through leaving a thin layer of the thyroid adherent to the trachea. Into the lowest part of the wound a gauze drain was inserted and also a rubber drainage-tube, the lower end of which was brought out through a small opening above the sternal notch. Two hours afterwards the pulse was 120 and regular. Next day the dressings were changed and were sopping with secretion from the torn surfaces of the thyroid. On the second day after the operation the pulse-rate was 120 and 104; on the third day 98 and 106; on the fourth 100 and 88; and from that day onwards it was about 88. On Nov. 3rd, when the patient left, the weight was 7 st. She wrote on Dec. 9th saying: "I am now 8 st.; I have a very good appetite without the aid of medicine; I feel quite a different being, and life is now worth living." On Jan. 8th she wrote: "I am now 8 st. 8 lb. I think I am quite fat enough."

Mr. W. TROTTER described a case of Carcinoma of the Thyroid in which the patient had been operated on by him 3½ years ago, the condition then showing extensive involvement of lymphatic glands. There was no recurrence.—A discussion followed in which Dr. LEONARD WILLIAMS, Dr. R. HUTCHISON, Dr. W. P. HERRINGHAM, Mr. C. GORDON WATSON, and Mr. W. SAMPSON HANDLEY took part.

Mr. H. A. LEDIARD (Carlisle) described a case of Benign Cyst of the Tibia. The patient was a girl, aged 14 years, who was brought to the Cumberland Infirmary on August 14th, 1910, on account of a large swelling in the lower third of the left leg, which had been growing for nine months, so far as it had been observed. At first there was no pain, but more recently, when weight was put on the leg, as in walking, pain was felt. During the three months prior to admission the swelling in the leg had increased considerably. On the left leg a well-marked swelling of the tibia was seen, which involved the lower third of the bone, reaching almost to the ankle-joint. The swelling was uniform in outline and pear-shaped, the widest part being above the ankle, and the apex tapered off into the normal bone above. The swelling was firm to the touch, and the skin over it was tightly stretched, but not adherent. No egg-shell crackling was obtained. There was no alteration in the colour of the skin over the swelling, nor were any vessels visible. No tenderness was present except on firm pressure. There was no rise of temperature locally or generally, and the general condition of the girl called for no comment. In order to discover the nature of the swelling a trephine was used over the inner aspect of the swelling. The bit of bone removed was exceedingly thin, and presented no obstacle to the saw. The finger discovered a large cavity in the bone, which contained a clear watery fluid, slightly tinged with blood. No spicules of bone were detected, but a smooth thin membrane lined the cavity. The bone appeared to be very thin and expanded uniformly all round. The fluid from the cyst was not saved for examination. A few days later the limb was amputated at the knee-joint. The girl recovered and left the hospital on Oct. 1st. The swelling of the bone was consistent with a sarcoma, or with tuberculous disease of the medulla, and, as matters turned out, with a cyst of the bone. The absence of constitutional disturbance gave no indication in any special direction. There was no egg-shell crackling. The age of the girl favoured the presence of sarcoma, but the surface of the swelling was even all over and shaded off above into the normal bone at the junction of the middle and lower thirds of the limb. When the trephine was used it was seen that an expansion of the bone into a thin shell was the disease to be dealt with. Prior to any interference a radiograph was taken, and it showed a uniform smooth-surfaced swelling of the tibia, and a light shadow in contrast with the dark one of the healthy bone of the shaft above the cyst. At the lower part the swelling ended abruptly at the level of the epiphysis. To those experienced in the radiography of bone cysts, the radiograph of this case might be conclusive. Beck was the first to allude to the diagnostic differentiation of bone cysts by radiography. He said, "The radiograph yields a clearly bounded line of cortex of the thickness of letter paper, forming a frame for a quite transparent oval surface of spindle form. The cohesion of the outer rind is nowhere broken. The epiphyses are normal."[1] Lexer had attributed a high value to the radiography of bone cysts, but other observers had not been so impressed. Rumpel had concluded that cysts of bone could be distinguished from sarcomata by radiography. In 1907 Jones and Morgan wrote on "Benign Cysts of the Long Bones," and stress was laid by them on the value of radiography in the diagnosis. Since then Mr. Hugh Lett had published a radiograph of a cyst of the humerus upon which he operated with success.[2] There could be no doubt that radiography was of great value in aiding the diagnosis of these cases, even if it could not be said to give a conclusive verdict when it was brought into use in bone cysts. In Mr. Lediard's case the radiograph showed no thin dark line bounding the cyst suggestive of the thin shell of bone which was found and could be seen in the specimen or photograph. Amputation was resorted to because the diagnosis leaned to a malignant growth, and not because the limb might have been unserviceable if a less drastic means had been adopted. The cyst measured 3½ inches in length and 2½ inches in breadth. The shell of the bone was very thin, and before long egg-shell crackling would have been present, and a great liability to fracture. The growth of the cyst was actively proceeding in all directions, upwards in the shaft of the bone, backwards in the direction of the Achilles tendon, forwards as well as downwards, invading the epiphysis. Microscopically there was no evidence that the cyst had developed from a growth, and no cartilage was found in connexion with the cyst formation. The formation appeared to be caused by a process of absorption, probably starting in the marrow and gradually extending outwards with expansion of that part of the shaft.

Dr. HUTCHISON showed a case of Splenomegaly (? Congenital Family Cholæmia), and two cases of Secondary Anæmia associated with Achylia. Referring to the last two cases, Dr. Hutchison pointed out that achylia was well known in association with pernicious anæmia, and that the cases suggested that any severe anæmia of long duration might also be associated with it. He drew attention to the persistence of the achylia in the first of the two cases after the disappearance of the anæmia, and commented on the simulation of latent carcinoma of the stomach by such cases.

Dr. JAMES COLLIER and Mr. J. P. LOCKHART MUMMERY showed a case of Tabes Dorsalis with early rectal crises.

Dr. LEONARD G. GUTHRIE exhibited two cases of Muscular Atrophy of the Peroneal Type (Charcot, Marie, Tooth) in father and son.

Dr. HERRINGHAM showed a case of Septic Gastritis.

Mr. EVANS furnished a subsequent report on a case of Excision of the Larynx, Lower Part of the Pharynx, and Upper End of the Œsophagus for Malignant Disease (Squamous-celled Carcinoma) of those structures. The patient, a female, aged 40 years, was shown at a meeting of the Clinical Section on Nov. 12th, 1909.

SECTION OF ANÆSTHETICS.

The Use of Scopolamine and Morphine, Atropine, and Similar Drugs by Injection before Inhalation Anæsthesia.

A MEETING of this section was held on March 2nd, Dr. W. J. MCCARDIE, the President, being in the chair.

Dr. DUDLEY BUXTON, who opened the discussion, pointed out that the use of combined anæsthesia—that is, the employment of some narcotic or alkaloidal drug given antecedently to the inhalation of a general anæsthetic—was no recent innovation. Claud Bernard, Regnier, Julliard, Dastre and Morat, Demarquey, and many others had advocated and practised the method. The use of morphine before chloroform or ether had been shown to possess certain drawbacks, so that it was not until Schmidt isolated scopolamine, and it was shown by Schneiderlin that this drug, combined with morphine, rendered it possible to avoid many of the dangers of morphine when given alone, that the recent revival of the combined method became possible. The school represented by Gauss, Korff, and others had attempted to use these drugs alone and to produce the "dämmerschlaf," or dawning sleep, in lieu of inhalation anæsthesia. Outside the confines of midwifery this method, whatever its merits within that restricted area, had proved insufficient for general surgery. To supplement it the practice had grown of employing these drugs alone or

[1] Archives of Clinical Surgery, vol. lxx.
[2] THE LANCET, Oct. 22nd, 1910, p. 1202.

associated with other alkaloids by hypodermic injection and following this by inhalation of ether, chloroform, and other general anæsthetics such as nitrous oxide, as advocated by Dr. Crile, chloride of ethyl, and various mixtures and successions. Those who had pursued this plan had published series of cases, some spoke in favour, others were less certain of the merits of the procedure. Again, scopolamine had been recently advocated to obviate the nervous strain which all feel was the worst feature incident to intra-dorsal injection. The speaker pointed out that as yet the subject was only in the stage of trial. We had yet to learn its dangers and the best technique, and to decide what drugs and what doses should be given. It was time that the pharmacology of scopolamine and morphine was well known, but we had yet to obtain experience of their interaction with general anæsthetics, especially under the varying conditions presented by patients suffering from multifarious pathological lesions. He quoted a number of authorities and gave their results, which upon the whole were favourable. That the method of combined anæsthesia presented special difficulties and dangers he admitted, but he submitted that the former were capable of being minimised by care and forethought, and the latter would disappear when the technique was better understood and more carefully elaborated. In reference to the actual drugs, the speaker spoke of the researches of Dr. Sahli, who proposed using the chlorides of the alkaloidal bodies of opium as safer than morphine, and guarding the effects of scopolamine by attention to the requisite dosage of individuals. Atropine became, he thought, an essential addition when open ether was used, as although scopolamine produced similar effects, yet when combined with morphine its action in that direction was insufficient to counteract the injurious results of unstinted doses of ether. In the mutually synergent action of alkaloids associated with general anæsthetics, especially when oxygen was used, Dr. Dudley Buxton believed that the best results were obtainable. The method removed pre-anæsthetic alarm, lessened the amount of the general anæsthetic, and so diminished after-effects, and gave prolonged post-operative sleep and mental tranquillity.

Dr. H. MACNAUGHTON-JONES said that he had been using scopolamine-morphia and chloroform anæsthesia in serious abdominal and pelvic operations for nearly five years. The great majority of these had been done under this method. A subcutaneous injection of 1/6 gr. of morphia and 1/100 gr. of scopolamine were given the night before, after the bowel had been well emptied; a second injection was given the following morning, after a rectal enema; and one hour before operation 1/36 gr. of strychnine and 1/100 gr. of atropine were administered subcutaneously. In some instances only one injection was given, that on the morning of the operation. He had only had time to look up the last 30 of his cases, which might be taken as typical of the effect and advantages of this form of anæsthesia. In regard to vomiting, in 18 of these cases there had been little or no sickness; some sickness occurred in the instance of five patients on the day of operation; and four had not vomited until the second day. Only in one case had there been persistent vomiting. In this three cœliotomies had been performed at comparatively short intervals. It was clearly a case of idiosyncrasy. The patient had been operated upon previously under chloroform anæsthesia, and there had been persistent vomiting for some days. The condition antecedent to operation was, as Dr. Dudley Buxton had stated, favourable, from the calm and rest of the previous night, and her indifference at the time of operation. There was the great advantage of the minimum of chloroform in proportion to the severity and length of operation, as well as the certainty of the quantity inhaled. There was decidedly a better condition the day of the operation, greater calm and less pain. In not one single instance in any of the operations had an untoward symptom arisen from this method of administration. He spoke in praise of the Vernon-Harcourt regulator, of which he had had experience since it had first come into use. He had not used scopolamine and morphia with ether. He had reserved its administration for abdominal operations. He thought that the time had arrived when, with their present knowledge, anæsthetists might more definitely formulate the conditions demanding certain methods of administration and the nature of the anæsthetic indicated. Thus greater uniformity of administration would be arrived at.

Mr. F. S. ROOD recorded 300 cases and furnished the following particulars. The injection of scopolamine, morphia, and atropine, 1/100, 1/6, and 1/120 grain respectively, was given 45 minutes before operation. The patient was then left in bed with screens around or in a darkened room. The anæsthesia was commenced in bed and complete surgical anæsthesia obtained before moving the patient. In the first 50 cases 1/100, 1/120, and 1/6 grain of scopolamine, atropine, and morphia respectively were given to the women, while in the case of the men a preliminary injection of 1/6 grain of morphia one and a half hours before operation was also given. In the remaining 250 cases all received 1/100, 1/120, and 1/6 grain, with the exception of ten children between 10–16 years, who each received 1/120 of scopolamine, 1/120 of atropine, and 1/8 of morphia. In 167 cases the patient was profoundly asleep at the time of induction of anæsthesia, in 131 cases very drowsy and indifferent, and in 2 cases no narcotic effect was produced. In 40 cases ether by the open method was employed from the commencement. It was found that the pungent ether vapour sometimes caused those patients who were only drowsy to wake up. In 260 cases anæsthesia was induced with chloroform by the open method and continued with ether. In most cases the respirations during operation were indistinguishable from, or even quieter than in, chloroform anæsthesia. In 15 cases of men of a plethoric, muscular type the respirations were certainly exaggerated, but even in these cases the movement of the abdomen was certainly much less than with ether alone. There was a marked insusceptibility to reflex troubles, respiratory or cardiac. Of 20 cases of thyroidectomy, including 12 exophthalmic goitres, there was stridor during the enucleation in one case only, and in no case was the pulse accelerated. The relaxation obtained appeared to be in direct proportion to the amount of ether given. The absence of mucus was a great advantage whilst maintaining a deep anæsthesia, whilst the quiet respirations were obviously an advantage in abdominal surgery. As to after effects, the patients usually remained unconscious, breathing regularly from 3–5 hours after operation. In 23 cases in which the operation lasted over two hours the average period of unconsciousness was six hours; in 5 cases where there was rather severe shock, lasting seven hours. With regard to after vomiting, 144 cases did not vomit at all; 135 cases vomited once or twice; and 21 vomited several times during the first few hours after recovering consciousness. In those cases where vomiting occurred it did not take the delayed type. He concluded that from the point of view of the patient the method blotted out or robbed of its terrors the preliminaries of an operation, which in some cases—as, for instance, exophthalmic goitre—was a very real advantage. Also it diminished the discomforts of after-pain, &c., by lengthening the period of unconsciousness, and vomiting certainly seemed to be lessened. From the point of view of the operator the quiet respiration and relaxation which were usually obtained were of great assistance, and finally there was the undoubted advantage of being able to substitute, with equal results, a safe drug like ether for a dangerous one like chloroform.

Dr. J. BLUMFELD stated that he had used morphia and atropine before various general anæsthetics, and considered that less mucus and additional quiet were obtained. He had heard from Mr. H. M. Page, a member who was unable to be present, of cases of respiratory difficulty and actual cessation of respiration from morphia administered too shortly before the operation, its effects deepening while this was proceeding.

Dr. G. A. H. BARTON said he used 1/100 grain scopolamine and 1/6 grain morphia three-quarters of an hour before operation. He found it specially useful in laryngeal and œsophageal work. He found induction shortened and abdominal rigidity diminished. The open ether method was used. There was also less tendency to shock, which counterbalanced the occasional tendency to respiratory difficulty.

Dr. J. F. W. SILK said the subject under discussion was not new, but had come up at intervals during the past 20 years. There was difference of opinion as to rigidity, some finding less, others more, when scopolamine and morphia were used. In the latter cases he thought probably too little anæsthetic was used. There was also a good deal of uncertainty about the duration of stupor and the frequency of vomiting.

Mrs. DICKINSON BERRY stated that she had used atropine and morphia, 1/100 and 1/6 grain, in some cases and thought that vomiting and restlessness had been increased. Scopolamine had recently been added in a few cases and better results were obtained.

The PRESIDENT considered that the effects of the drugs

depended largely on what preparations were used. He found some of the German preparations were far more satisfactory than any of the English ones. He used them when light anæsthesia was required, and found the effect was to deepen the anæsthesia from the surgeon's point of view and to lighten it from that of the anæsthetist. With regard to atropine, he observed that though it was considered generally to stimulate the heart, recent investigations made by Webster of Winnipeg pointed to its producing a paralytic effect on heart muscle.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on March 3rd, Dr. P. WATSON-WILLIAMS, the President, being in the chair.

Professor HOBDAY, F.R.C.V.S., gave a short address, and showed specimens of the Equine Larynx illustrating the results of the "ventricle stripping" operation for the relief of the conditions known as "whistling" and "roaring" in horses. The operation consists in removing the mucous membrane completely from the pouch or ventricle at the back of the paralysed vocal cord with the idea that two raw surfaces will thus be made, the two sides of the ventricle adhere together, and thus completely obliterate it. It thus follows that the paralysed vocal cord which is the cause of the "roaring" must of necessity be retracted out of the lumen of the larynx, and become firmly adherent to the wall of this organ. An interesting discussion followed, and it was generally considered that the operation could have but a very limited application as regards the human larynx.

The PRESIDENT showed a case of Carcinoma of the Larynx operated on for malignant disease on Nov. 9th. The patient was a woman aged 40 years. The voice was good, but some members were of opinion that signs of recurrence were present.

Mr. J. GAY FRENCH: Endothelioma of the Palate with Metastatic Growths in the Neck, which had derived great benefit from treatment with radium, the amount used being 50 milligrammes.

Mr. HERBERT TILLEY: 1. A Portion of a Rabbit's Bone removed from the Right Bronchus after three years' impaction, and which had produced signs of bronchiectasis. Skiagraphy in this case had failed to reveal the presence of any foreign body. 2. A Tooth removed from the floor of the right maxillary antrum.

Dr. W. H. KELSON: Tumour of the Right Side of the Neck involving the Pharynx, in a woman aged 30 years. The growth was a very slowly growing sarcoma, taking origin apparently from the transverse processes of the cervical vertebræ. Owing to the agonising pain suffered an operation had been performed by the exhibitor and as much as possible of the growth removed, with complete relief to the pain. Rapid healing had taken place.

Dr. L. HEMINGTON PEGLER: (1) A case of Ulceration of the Pharynx in an old man, possibly connected with pyorrhœa alveolaris; (2) Party-wall Cancer of the Larynx and Œsophagus in a woman aged 45 years; and (3) Tuberculosis of the Larynx in a woman aged 55 years.

Dr. DAN MACKENZIE: 1. Antrum Suppuration treated by Nasal Antrostomy, followed by blocking of the nasal duct. The exhibitor thought that the duct must have been wounded at its lower end at the time of the operation. (In the discussion that followed the view of many members was that temporary epiphora after the radical operation on the maxillary antrum is not uncommon.) 2. Cicatricial Obliteration of the Naso-pharynx due to Hereditary Syphilis. The patient was a male, aged 27 years. When first seen the soft palate was found to be caught up and adherent to the posterior wall of the naso-pharynx, and was practically represented by a mass of scar tissue. Through this a small foramen led into the nose. Attempts were made to dilate the opening with a laminaria tent, which broke off, leaving a piece inside. Ulceration followed with formation of a clear opening, the result being that the patient could now blow his nose satisfactorily.

Dr. H. LAMBERT LACK: A woman with (?) Lupus Erythematosus of the Mucous Membrane of the Cheeks of over 12 months' standing. Various treatments had been adopted, including removal of all the teeth, under the impression that the cause might be sepsis, but nothing had so far been found to cure it.

Mr. SOMERVILLE HASTINGS and Dr. KELSON: Burrs of Special Shape and Construction for use in the radical maxillary antrum operation, by the intranasal route.

Dr. W. JOBSON HORNE: Loss of Voice in a young man, aged 20 years. It had come on gradually over two years, getting much worse during the last four or five months, and was accompanied by dysphagia. Sputum wa plentiful and physical signs were present in the chest.

Mr. FRANCIS F. MUECKE: A case of "Ventricular Voice" in a woman aged 28 years; hoarseness was first noticed when three years old, after scarlet fever. Since about 15 years old the voice had got gradually better. The general health of the patient was good. The left vocal cord could not be seen; the right was atrophied; the ventricular bands were rounded, large, and on phonation came closely together, the arytenoids turning inwards and assisting to close the glottis.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

The Treatment of Phthisis by Industrial Insurance.

A MEETING of this society was held on March 10th, Dr. W. G. WILLOUGHBY, the President, being in the chair.

Dr. T. D. LISTER read a paper upon the Treatment of Phthisis by Industrial Insurance, with special reference to the Benenden Sanatorium. He said that among the industrial classes the want of immunity to consumption chiefly depended upon ignorance, lack of sunlight, fresh air, and ventilation, and lack of a certain standard of living. Immunity to the disease was usually lost slowly and with difficulty, and with much greater difficulty than it was ever regained. While the conditions under which many of the working classes spent their time remained as they were, progress towards a successful conclusion of the anti-tuberculous campaign was bound to be slow. The greatest difficulty to be faced was an educational one. After giving an account of the steps in the development of the German system of insurance of workmen, he referred to the formation of the National Association for the Establishment and Maintenance of Sanatoria for Workers, which erected in 1906 the Benenden Sanatorium in Kent. Beds in this institution may be maintained by workers' organisations at an annual charge of £65 per bed and by local authorities of £78 per bed. Additional temporary accommodation may be obtained by workers' organisations at a cost of 25*s.* per week for each bed, and by local authorities at a weekly cost of 30*s.* per bed. Poor-law patients are not received into the sanatorium. The average weekly cost of each patient is 26*s.* 1*d.* Taking into account the condition on discharge, 81 per cent. of those who left the sanatorium with the disease "arrested" were still doing full work from more than six months to more than two years after their discharge, while 37 per cent. of those who left as "improved" and 7 per cent. of those who left "unimproved" were doing full work at the same periods after discharge. Among workers' organisations the largest amount of support of the institution comes from the Post Office employees, nearly 50,000 of whom subscribe 2*s.* annually to the funds. After referring to the inactivity of the great friendly societies as regards the cure of consumptive patients, although they were paying away over £1,000,000 yearly in the relief of those suffering from the disease, Dr. Lister expressed the opinion that this inactivity was due to the fact that the disease arose in faulty educational methods, in faulty hygienic conditions of employment, and in bad housing, and because the admission of the name of the disease often meant, under present conditions, the break-up of the home.

Dr. J. R. KAYE and Mr. HERBERT JONES spoke in approving terms of the arrangements which they had seen at the Benenden Sanatorium.

Dr. F. C. SHRUBSALL urged that the success of a sanatorium was mainly due to its management, and that a suitable superintendent was more important than a suitable locality or elaborate arrangements for ventilation and the prevention of dust traps. Sanatorium patients must be taught the best way to manage their lives when they returned to their homes, so the institution arrangements should approximate to those in the homes. He emphasised the importance of a patient returning to his own work, and not to work apparently less

arduous but most probably also less well paid. Starvation was a worse disease than tuberculosis.

Mr. C. H. GARLAND advocated the extension of the Edinburgh method of dealing with tuberculosis to the whole kingdom. This, he considered, was too vast an undertaking for voluntary effort, and could only be carried out by the State under some system of insurance.

Dr. J. S. TEW urged the importance of simplicity in sanatorium treatment and of making the patients perform suitable work.

Mr. E. H. T. NASH pointed out that it must be brought home to the working classes that the prevention of tuberculosis was a working class question. He considered that a main factor in dealing with the disease was food, and agreed that every patient should be encouraged in the hope of returning to his own work.

Dr. C. SANDERS spoke of the importance of dealing with the family of a consumptive bread-winner.

Dr. W. BUTLER and Mr. F. E. FREMANTLE also took part in the discussion.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Duodenal Ulcer: its Diagnosis and Treatment.

A MEETING of this society was held on March 1st, Dr. BYROM BRAMWELL, the President, being in the chair.

Professor F. M. CAIRD introduced a discussion on Duodenal Ulcer; its Diagnosis and Treatment. He said that of recent years their knowledge of gastric and allied affections had been advanced by the freedom with which abdominal exploration was practised in order to substantiate a diagnosis, to combat certain symptoms, and to establish a definite line of treatment. As a result of this their appreciation of the relative value of symptoms had been increased, and they were in a better position than formerly to judge the rôle these should play in guiding them to a definite conclusion; they could with greater accuracy recognise special ailments and the treatment appropriate to each. It would be conceded that a correct diagnosis was their highest aim, and could they only formulate a definite method of obtaining this with sufficient exactness the question of treatment would be practically settled. As to the diagnosis of duodenal ulcer, it had been asserted that certain prominent symptoms might be grouped together as peculiar to duodenal ulcer which were not common to gastric ulcer. This important symptomatic differentiation originated mainly in the Leeds School, and they might here acknowledge their debt of gratitude, more especially to Mr. Moynihan, for the stimulating, dogmatic, and bold pronouncement he had made on this subject. Moynihan held that a careful elucidation of certain symptoms apart from any objective examination of the patient might lead them to form a correct diagnosis as to the existence of duodenal ulcer. He believed that in typical instances there would be found a long-standing history of intermittent dyspeptic attacks, aggravated during the colder seasons, occurring chiefly in males from 25 to 45 years of age, characterised by gastric discomfort and pain, which followed two to six hours after the chief meal, gave rise to a sense of hunger, was relieved by taking food, and frequently awoke the patient during the night. Hæmorrhage, a late symptom, took the form of melæna; and vomiting, infrequent, became more pronounced as stenosis due to cicatrisation progressed. Beyond local tenderness present in some cases they were informed that there was no objective sign of substantial value, and it was indicated that a test meal usually showed less free HCl than normally. They were therefore presented with features which differed considerably from those commonly met with in chronic gastric ulcer, in which condition they found that pain came on shortly after ingestion of food and was not relieved by eating, where the hæmorrhage took the form of hæmatemesis, where vomiting might be frequent, and where the HCl was increased. While they admired the happy terms and trenchant style in which Mr. Moynihan expressed the duodenal ulcer syndrome, they were not clear that it was so easy to differentiate from symptoms alone the position of ulcers which might lie in such close neighbourhood as on one or other side of the pylorus. They were ready to welcome and admit the general truths he stated, but Professor Caird had met with cases where no duodenal ulcer existed although the typical symptoms were present, just as in their entire absence the ulcer might occasionally be disclosed. Professor Caird narrated an illustrative case. He was also able to recall cases of perforated duodenal ulcer which had exhibited no antecedent symptoms. They might leave to the physician the important task of indicating the more salient points in diagnosis which enabled one to differentiate between the allied forms of ulceration, the results of hyperchlorhydria, the various types of dyspepsia due to latent or hidden appendicitis and cholelithiasis, since they were chiefly concerned with the early, and therefore less pronounced, manifestations of these affections in which their diagnostic acumen was of such service. He believed that the application of general principles, careful consideration and examination should preclude error even in difficult cases. He had noted that the test meal in cases of duodenal ulcer showed the presence of HCl in excess. He also looked to the physician for a statement as to what seemed the most useful lines of treatment, for it would be naturally believed that, if the patient sought advice during the early stages of duodenal ulcer at least, healing might be effected under suitable care and regimen. The fact that recurrence might take place at a later date after apparent cure, just as it might follow, although more rarely, surgical intervention, left them with a suspicion that they had not yet arrived at the primal source of the disease. That duodenal ulcer was most prone to originate in the first part of the duodenum, and became less frequent as they receded from the area which received the acid outflow from the stomach, had long been recognised. Fuller information was required as to the sex incidence, and they wished to know the cause of the initial death of tissue which left an ulcer which refused to heal as long as it was washed by the acid gastric contents. Was the ulcer of embolic, toxic, or traumatic origin? Failure to detect a duodenal ulcer even after surgical investigation had been followed by the actual demonstration of such after death. As to the appearance of the ulcer, Professor Caird had observed (1) silvery white patches of about the size of a threepenny piece, sometimes rather stellate in outline, superficial in character, and with the slightest or almost no trace of thickening; (2) cicatricial puckerings with adhesions and pouches and varying degrees of stenosis but with well-developed crateriform thickenings had been rarely met with; and (3) large tumour-like inflammatory masses adherent to the liver and gall bladder, and free from the pylorus. Such conditions might by traction evolve symptoms which complicated the diagnosis. Surgical treatment of duodenal ulcer consisted primarily in the formation of an anastomosis between the stomach and the jejunum. The curative effect was ascribed to the local rest which was given to the affected area. It was practically a system of drainage whereby the irritating gastric contents were diverted from the normal route through the pylorus and duodenum; in addition to this, the alkaline contents of the duodenum mingled with the gastric secretions and mitigated their acidity. They were aware that the natural functions can even be well performed after loss of the pylorus, and the screen had shown that the aperture in gastro-enterostomy might assume the function of the pylorus until such time as the ulcer healed. He had no desire to emphasise the surgical aspect of treatment, but as a rule posterior gastro-jejunostomy was recognised as the principal curative agent, but with it some surgeons believed that it might be combined with adjuvant treatment of the local lesion in the shape of excision of the ulcer, infolding or inversion of the affected area, or complete closure of the pyloric ring. Others again had not hesitated to excise the whole segment of the affected bowel, following this up by an end-to-end junction. That such measures should become a matter of routine he doubted; excision in any form meant increased risk. It might be admitted that total closure of the gastric outlet might ensure greater rest to the affected area, but it was questionable if the gain was so marked as it might appear at first sight, since in the presence of a gastro-jejunostomy all the food was apparently transmitted by the new route only, and the pylorus did not resume its function in this way until the ulcers had healed. It might be urged that closure of the pylorus effectively prevented a *circulus vitiosus*, but this did not occur in well-executed operations. It might also be advanced that greater security was afforded to the patient, and that by such additional measures less opportunity was

afforded for the return of ulceration. But it had to be remembered that recurrence might take place after surgical operation for duodenal ulcer, although personally Professor Caird had no such experience, and it had yet to be established that the various tempting additions to a simple gastro-jejunostomy lessened this tendency to any marked degree. The results of operation were brilliant, and he could not recall a single instance where a gastro-jejunostomy practised for a duodenal ulcer had been followed by a return. Examination of the gastric contents months after operation had given varied results. It might be noted that in some instances the excessive acidity had been restored to the normal standard. The question of interference to check hæmorrhage in the form of a melæna which threatened life was one in which he had had no experience. In one case a simple gastro-jejunostomy performed for duodenal ulcer with fibrous induration and adhesions, all left undisturbed, was succeeded immediately by severe pain and symptoms which simulated those of perforation. The pallor, small pulse, and lack of abdominal rigidity gave the key to the situation, and the evacuation of large quantities of blood proved what had occurred. Perforation of a duodenal ulcer exhibited symptoms which as a rule differed only in degree from those of similar gastric lesions near the pylorus. The history or lack of history of indigestion, right-sided tendency of the pain and tenderness might aid one in arriving at a diagnosis. A diagnosis between gastric and appendicular perforation was often not easy.

Dr. WILLIAM RUSSELL said that on the subject of duodenal ulcer there had been a great deal of confused writing. He ventured to submit certain propositions which were the result of his own experience: First, duodenal ulcers were in all respects analogous to gastric ulcers and might be classified as acute, chronic, and perforating; secondly, in both duodenal and gastric ulcers marked disturbance of the gastric functions preceded or was associated with the lesions. There were exceptions to this rule, however. The chief gastric disturbance was hyperchlorhydria. One point had to be borne in mind, and that was that the lesion in both acute gastric and acute duodenal ulcer might, judging by its speedy recovery, be a superficial erosion, although associated with hæmorrhage. In the diagnosis of duodenal ulcer one must be able to differentiate between, and to treat successfully, the different disorders of gastric function, because on the *failure* to remove certain symptoms the diagnosis of duodenal ulcer might depend. Acute duodenal ulcer often came on during the course of an attack of hyperchlorhydria. Acute ulcer was in his experience easy to cure as a rule. Within the last few months Dr. Russell had seen three cases of acute duodenal ulcer associated with severe melæna, and all had rapidly recovered on appropriate diet and medical treatment. Duodenal ulcer might heal as completely and speedily as gastric ulcer. The very fact that one failed to arrest melæna or the pain which ensued two hours or more after taking food was almost a certain proof that the case was one of duodenal ulcer. Then as to chronic duodenal ulcer, some physicians thought that they could cure such cases without gastro-enterostomy. He had doubts as to these being cases of chronic ulcer, and thought that possibly they were cases of derangements of stomach function. When he was convinced that he was dealing with a chronic duodenal ulcer he did not spend much time in endeavouring to effect a cure, but soon advised gastro-enterostomy. Lastly, as to perforated duodenal ulcer, it, of course, required operation. In a case of this kind to which he referred, the earliest symptoms of duodenal ulcer had been ignored in spite of melæna, the ulcer having developed after years of recurring hyperchlorhydria. Other points he had not time to refer to.

Dr. T. W. DEWAR (Dunblane) asked if Professor Caird had noted a history of heredity in such cases. He knew of a grandmother who died either from gastric or duodenal ulcer. She had a family of six; three of these suffered all their lives from dyspeptic symptoms, and one had four children of whom two had had gastrostomy performed. Dr. Dewar himself had suffered from duodenal ulcer with acute discomfort, attended with intervals of good health, though he did not think that the ulcer had ever really been healed. He was seized suddenly with vomiting, which persisted until he was operated upon. The cure had not been entire, and he had had two attacks of melæna.

Dr. GEORGE A. GIBSON said that on looking over his case-books he found that the general expression of hyperacidity was not borne out by his own observations in cases of true duodenal ulcer. The total acidity varied from 0·1 to 0·26 per cent., or a condition of hypo-acidity to slight hyper-acidity and the free acidity varied from 0·02 to 0·18 per cent.; the condition of acidity varied very widely. In cases of recent hæmatemesis or melæna he never dreamt of getting a test meal as its very withdrawal might do harm. He believed that the gastric spasm which accompanied duodenal ulcer prevented the passage of the acid gastric contents after operation. He found it very difficult to separate between acute and chronic duodenal ulcer, and even the diagnosis of this form of ulceration was difficult. He had diagnosed this affection, and at the operation either nothing abnormal was found or it might be a case of gall-stones or appendicitis. He doubted much as to the possibility of accurate diagnosis. He took a gloomy view as to treatment and was sceptical as to the healing of chronic ulcer, and indeed he was of opinion that it did not heal, though the acute ulcer might. He unhesitatingly called in the surgeon's aid at the earliest possible moment whenever he was sure of the disease, and he thought it best to close the pylorus completely as then the best results were obtained.

Mr. C. W. CATHCART said that the mortality in perforated duodenal ulcer was very high. Of 8 cases, 6 were fatal and 2 recovered. In 5 of these there was the typical hunger-pain from 1½ to 2 hours after taking food; in 3 symptoms of chronic dyspepsia were present, and in 1 only slight epigastric pain. Of 25 cases of perforated gastric ulcer, 12 died and 13 recovered, and in the majority of these dyspepsia and pain shortly after taking food were complained of, though in some typical hunger-pain two hours after food was present. The fact that pain disappeared was no criterion that the ulcer had healed. A duodenal ulcer could only be recognised by sight, and it might not be palpable at all.

Professor H. ALEXIS THOMSON said that it was only seven years ago since the first operation for chronic duodenal ulcer was performed, and one had to be gradually educated to the difficulties of diagnosis and treatment, as had been the case with appendicitis. The sex preference in duodenal ulcer was remarkable, as it occurred in only 5 women to 50 males. The relationship to malignant disease was peculiar: a chronic gastric ulcer often became carcinomatous, but he doubted if anyone had seen this change in the case of duodenal ulcer. He always thought that if the pain was much influenced by diet, then the ulcer was likely to be gastric; while if any food might be taken with impunity, then it was probably duodenal. In cases of ruptured duodenal ulcer the best method of transport of the patient was in the sitting attitude. He had not thought it necessary to close the pylorus in operating.

Dr. J. O. AFFLECK said that his own experience was that the diagnosis of duodenal ulcer was difficult; the symptoms were often of a negative character, and the first might be those of perforation or hæmorrhage or they might be masked by the symptoms of other co-existing disease, as in one case the symptoms of advanced aortic disease entirely masked those of duodenal ulcer which was present. An infant who died after acute abdominal symptoms was found to have a perforated duodenal ulcer, and in the case of a woman who died there were 20 ulcers in the stomach and four in the duodenum. As to treatment, he did not think that all cases should be handed over to the surgeon. He had seen many cases of perfect recovery in patients who presented all the clinical symptoms of duodenal ulcer. One patient was too ill for operation and yet made a complete recovery; he had to state, however, that those cases dealt with by the surgeon had been eminently satisfactory.

Mr. HAROLD J. STILES said there were cases which on account of their aberrant symptoms he could not diagnose as cases of gall-stones with adhesions, malignant tumour of the hepatic flexure, &c. He was led to think that hæmatemesis or melæna were not very definite symptoms. He had met with two cases of vicious circle which had resulted from operation for a duodenal ulcer which did not exist. He was not in the habit of closing the duodenum when there was a definite ulcer, but only when there was gastroptosis. He would be chary in diagnosing acute duodenal ulcer, but if the symptoms pointed to it and if severe hæmorrhage were present he would advise operation. He was convinced that gastro-enterostomy did not do any harm to the patient, and young children developed quite as well as healthy children. As explaining the site of duodenal ulcer he said that it

might be due to the vascular distribution. The blood-supply up to a certain line was from the cœliac axis, while on the other side it came from the superior mesenteric artery; at the border-line between these, ulceration was likely to be found.

Dr. G. LOVELL GULLAND referred to the extreme difficulty in diagnosis, and said that hyperchlorhydria might be the only symptom present; two-thirds of his cases showed this condition, while one-third did not, and better results were obtained from medical treatment in the latter, while surgical measures were more satisfactory in the former. He thought that the following class of cases required operation: 1. All cases where there was retention of gastric contents owing to stricture. 2. All cases with severe and repeated hæmorrhage. In such cases examination of the fæces for the presence of blood was most useful. 3. All cases of inflammatory enlargement. 4. Patients who could not study their diet, as commercial travellers. He said that gastro-enterostomy was not entirely devoid of danger, while in many cases complete recovery did not take place, and the patient might be in as bad a condition as before operation.

The PRESIDENT said that some observers seemed to have had a large experience of duodenal ulcer, but this had not been his. Duodenal ulceration as seen post mortem or at operation was a very much less frequent occurrence than the evidence of the meeting might lead one to expect. In diagnosis he laid special stress on the sex question, and he required much greater evidence before diagnosing the condition in women. He had noted that cold made these cases much worse, and he had noted jaundice in cases of true duodenal ulcer. He alluded to hæmorrhage which might result from superficial erosions which might heal before operation, and hence difficulty would arise in determining from where the bleeding had proceeded. His own feeling as to operation was that if symptoms had occurred for the first time, medical treatment should be employed, but if the ulcer did not heal readily or if relapses occurred operation should be performed at once, as death so often followed on perforation or severe hæmorrhage.

Mr. D. P. D. WILKIE, Mr. ALEXANDER MILES, Mr. J. W. DOWDEN, and Dr. F. D. BOYD took part in the discussion, and in reply Professor CAIRD said that occult hæmorrhage would help them very greatly in diagnosis. In performing gastro-jejunostomy for duodenal ulcer there was an absolute assurance of cure. There was good reason to believe that a protective spasm did take place and that it was of great use after operation. It would be very difficult to decide the question by statistics because it was a question of individual cases. He knew of one case where a duodenal ulcer developed a year after an operation for appendicitis.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Presentation of Cases.—Rheumatism in Childhood and in Adult Life.—Myasthenia Gravis.—Cerebral Tumour.

A MEETING of this society was held on Feb. 10th, Sir JOHN W. MOORE, the President, being in the chair.

Dr. J. F. O'CARROLL showed a case of Athetosis in a schoolgirl, aged 9 years, who had had severe whooping-cough before the affection was noticed. He considered this had led to a cortical hæmorrhage into the right hand area of the brain, the athetosis resulting therefrom. Also a case of Occupation Neurosis in a barber, who exhibited weakness and choreiform movements in his right hand. Dr. O'Carroll considered the movements in the patient's hand were fatigue phenomena due to excessive use.—Dr. W. M. CROFTON discussed the share of toxins in producing the neuro-muscular condition in the second case, noting that the patient suffered from pyorrhœa alveolaris.

Dr. BOYD BARRETT read a paper on the Differences in the Manifestations of Rheumatism in Childhood and in Adult Life, in which he referred to the occurrence in children of rheumatic tonsillitis, chorea, "growing pains," rheumatic nodules, "stiff neck," and hip-joint affections of rheumatic origin, and cardiac trouble. Emphasis was laid on the absence of hyperpyrexia and the rare occurrence in children of early years of acute polyarthritis. He stated, in conclusion, that rheumatism in children was characterised by (1) the variety of its manifestations; (2) its insidious onset; and (3) the mildness of the arthritic symptoms and the corresponding severity of the cardiac trouble.—This paper gave rise to a lively discussion, in which the PRESIDENT, Dr. O'CARROLL, Dr. H. C. DRURY, Dr. J. M. DAY, and Sir W. J. THOMPSON took part.

Dr. T. GILLMAN MOORHEAD read a paper on Myasthenia Gravis, in which he summarised the various facts and theories connected with that disease and reported a case. There were well-marked bilateral ptosis, almost complete ophthalmoplegia, and drooping of the lower lip and lower jaw. The neck muscles were much atrophied. The myasthenia reaction was obtained. Death occurred quite suddenly ten days after admission to hospital. The necropsy showed a persistent, but not very large, thymus gland, nervous system normal, lymphorrhages very scarce and badly marked in the muscles, and some parenchymatous nephritis; other organs were normal.—Dr. CROFTON said he was much interested in the question of etiology raised by the condition of the thymus gland and the infiltration of the muscles with small round cells. He referred to a report which had been made of two cases of thymic asthma, in which there had been extremely flabby muscles and general muscular exhaustion, which were treated by X rays, and they got perfectly well; they lost their thymic asthma and their blood condition was restored to normal. He also referred to the effect of giving extracts of the sexual glands. The two lines of treatment might throw light on the condition of myasthenia gravis. First of all, X ray treatment of the thymus might be tried, then extracts of the testis might be given.—Dr. MOORHEAD said that in his case of myasthenia gravis he had hopes of being able to find an enlarged thymus, but there was no enlargement of the area of dulness on percussion, so he did not think X rays would be of use in that particular case. Dr. Henderson's researches had impressed him with the idea of working out the inter-relations between organs as regards the effect of certain obscure metabolic products. It might throw light on this case.

Dr. A. R. PARSONS, Dr. BENSON, Dr. J. T. WIGHAM, and Mr. G. T. JOHNSTON brought forward a case of Intracranial Tumour which was successfully localised in the right frontal lobe in the neighbourhood of the face and tongue centres. Mr. Johnston trephined over this region, and removed a hardened mass in three portions, which was handed to Dr. Wigham, who reported that the mass was syphilitic. The operation was followed by complete loss of power in the left arm and leg. His blood, tested by Wassermann's reaction, gave a positive result. He was discharged from hospital a little over two months after the operation in full possession of his mental and physical faculties except slight traces of optic neuritis in process of subsidence.—Dr. T. DONNELLY described two cases of a similar nature, in both of which cure seemed to follow the liberal administration of iodide of potassium.—Dr. G. E P. MELDON believed that iodide of potassium acted only in those cases which had been well treated with mercury.—Dr. PARSONS said that the patient had been given over 400 grains of iodide of potassium, but that, despite this, his condition had got steadily worse.

SECTION OF OBSTETRICS.

Presentation of Cases and Specimens.—Forty-six Cases of Wertheim's Operation.

A MEETING of this section was held on Feb. 17th, Dr. H. JELLETT, the President, being in the chair.

The PRESIDENT showed a specimen of Adeno-carcinoma of the Cervix, taken from a middle-aged woman, which simulated a case of cervical myoma occurring in the same situation. There was nothing in the abdomen to be felt, and the diagnosis had to be made by splitting the cervix high up. The operation was a very extensive one.

Dr. GIBBON FITZGIBBON showed a case of Secondary Abdominal Pregnancy in the fourth month. The history was typical of ectopic gestation. The patient was aged 35 years, had two children, aged 9 and 7½ years. At the second confinement the child was very large, the presentation was a transverse one, and there was great difficulty in the delivery. Subsequently the patient evidently suffered from pelvic peritonitis or cellulitis. She had not been quite well for about five years after that, but

the two years previous to her admission to hospital she had been in fair health. She menstruated some time during last September. About Nov. 20th she was seized with severe pain in her abdomen and fainted. A few days after that she had profuse and continuous hæmorrhage which lasted for ten days, and intermittent hæmorrhage for a fortnight more. She went into hospital on Dec. 26th, but nothing could then be done. On Jan. 14th he opened the abdomen. The whole pelvic region was matted together. On taking out the tumour there was nothing between the fœtus and the intestines except the fœtal membranes. The front of the sac was formed by the anterior layer of the broad ligament. The uterus at the time of operation was of the size of a medium orange, and evidently contained a decidual formation, but no pieces were passed. The patient made an uninterrupted recovery, and went out on the twenty-sixth day after the operation.—Dr. R. D. PUREFOY wanted to know why Dr. Fitzgibbon had called it secondary abdominal gestation. Had Dr. Fitzgibbon ever read of primary abdominal gestation? He would like to know with what structures the placenta was continuous and on what structures the placenta had developed. There was a possibility of development of the decidua outside the cavity of the uterus.—The PRESIDENT said a case of primary abdominal pregnancy was recorded by Dr. Hurst. In this case the entire pregnancy structures were represented by a few layers of chorion.—Dr. FITZGIBBON said the entire pregnancy was closed up in an apparently closed sac. All through the abdomen there were pieces of very old brown leathery-looking blood clot which showed there had been bleeding into the abdominal cavity. The placenta was formed between the sides of the uterus running up over the top of the specimen. The rest of the placenta seemed to run over the top and front of the sac.

Mr. J. SPENCER SHEILL showed a Diseased Placenta. The patient was in the eighth month of her fourth pregnancy. The child was born dead. The pathological report by Dr. W. Boxwell was as follows: "The placenta is small, thin, and fibrous. On section it showed white areas of necrosis. Hæmorrhages are numerous, and there is a remarkable fibrosis of the blood-vessels, leading to more or less complete obliteration over considerable areas. The villi are atrophied." The diagnosis was probably syphilis, but syphilitic placentæ were said to be larger and paler.—Dr. E. H. TWEEDY said that small placentæ in syphilis were not uncommon, and were usually found with a dead fœtus, while in the large placenta the fœtus was usually born alive.—Dr. PUREFOY said that a syphilitic placenta associated with a dead infant was smaller than normal. In a syphilitic placenta the structural changes in the blood-vessels should enable one to diagnose the changes as syphilitic. Macroscopically he would be puzzled to say whether this placenta was not structurally deformed as a result of kidney disease.—Dr. W. M. CROFTON said as regards diagnosis it could be cleared up by doing a Wassermann.—Mr. SHEILL replied.

Dr. TWEEDY brought forward a series of 46 cases of Wertheim's Operation, with a mortality of 19·5 per cent. This percentage was swelled by the inclusion of his early cases, in which the mortality was 33 per cent. for his first year. He operated on 90 per cent. of the cases seen by him, and advocated operation in advanced cancer, not in the hope of bringing about a cure, but to mitigate pain and distress. The surgeon who could count a large percentage of cures after a two years' interval must have obtained them by selection of cases, and might, therefore, have consigned numbers of operable cancer patients to a hopeless outlook and a horrible death.—Professor W. G. SMITH said that Wertheim did well when he followed the general surgeon's method of removing the glands in operating on the breast. The operability of cases must be considered. The surgery of the ureter was of extreme importance. He described Dr. Latzko's method of implanting the ureter. The operation was a very simple one.—Dr. PUREFOY said the number of cases open to operative treatment had been enormously extended by Wertheim's method. Providing the patient was willing, operation should be attempted in any case where the patient was likely to survive the shock thereof.—Sir WILLIAM J. SMYLY said that Wertheim's method was still the best, and it would be best for beginners at least to stick closely to the rules laid down by him in a work just published founded upon an experience of 500 operations. The cause of ureteral fistula appeared to be still an unsolved riddle. Preparation of the patient before operation, he had read recently, was unnecessary, and only caused pain and hæmorrhage; but on thinking it over he thought it a great error to omit the preparation of the cervix, because should the vagina be opened the patient would undoubtedly get peritonitis.—The PRESIDENT said, with regard to the technique of the operation, there were two modifications—one, originally taught by Wertheim, in which the first step was to separate the bladder from the uterus; the other by Bumm, in which the infundibulo-pelvic ligament was divided, and the peritoneum at the base of the broad ligament cut through, after which the ureter was easily seen. It seemed to the speaker simple to find the ureter by this method, and it could then be traced into the cancerous mass. The only case where he thought this procedure was not preferable was where there was extensive involvement of the bladder wall, and this could be found out by cystoscopic examination.—Dr. TWEEDY, in reply, expressed surprise at the great number of cases of ureteral fistulæ and cystitis met with in Wertheim's cases, in spite of the most elaborate aseptic precautions and preparation of the patient. Preparation could be carried a great deal too far. An interval of two or three days should be the utmost to leave a patient without operating, as every hour was only adding to the chances of metastasis. In this operation especially gloves were required. If cancerous tissue got on the hands the bladder, ureter, and cellular tissue around the ureter might be infected, and he could quite understand cystitis and ureteral fistulæ occurring. Drainage of the cellular tissue was greatly advocated by Wertheim, but many great authorities hardly used drainage at all. Dr. Tweedy thought the great feature of Wertheim's operation was the complete shutting off of the peritoneum with drainage, and abdominal drainage was also at times a great advantage.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 3rd, Dr. Phineas S. Abraham, the President, being in the chair.—Dr. Harold Pritchard read a paper on the Present Position of Vaccine Therapy. He said that bacterial vaccines had now become very generally recognised as valuable therapeutic measures in the treatment of infective processes. In the future they were probably destined to play a much more prominent part than now. A vaccine having been defined and its mode of action explained, the merits of the various methods of administration were entered into, preference being given to the subcutaneous method. It was pointed out that a slight local reaction was the end to be desired after an initial dose of vaccine; if the size of the subsequent doses was properly gauged, and the interval of administration carefully fixed, there ought to be no subsequent reaction. A general reaction should never be obtained. It was pointed out that a reaction depended on three factors: (1) size of dose; (2) virulence of vaccine; and (3) reaction of patient. The first factor was the only one which they had under complete control; so that it was impossible to lay down rules for the administration of vaccine which were applicable to every patient. Generally speaking, the more acute the case and the more general the infection, the smaller should be the dose. Many illustrative cases were quoted.—Dr. J. L. Bunch said that the immediate effects of treatment by vaccine could be more readily studied in diseases of the skin than in diseases of internal organs. One would not dream of asserting that every tuberculous, staphylococcal, or streptococcal skin disease could be cured by vaccine therapy, but their successes ought in the future to be greater than in the past. He did not himself feel inclined to dispense with opsonic estimation—the only method of estimating the antibacterial defences of the body at their disposal.—Mr. H. Wansey Bayly thought the method employed in the preparation of vaccines important. It was best not to expose them to a temperature above 55° C. Personally he did not use heat at all, but sterilised them with 1 per cent. carbolic in saline. He had seldom noticed either local or general reaction except with typhoid vaccines and occasionally gonococcal vaccines. He agreed that the opsonic index could not be considered a reliable method of estimating immunity or for controlling vaccine treatment. He agreed with Dr. Pritchard that gonococcal vaccines varied greatly in virulence, and

therefore the initial dose should be minimal. His experience of pneumococcal vaccine in the treatment of acute pneumonia, though limited, had been encouraging. He had, like Dr. Pritchard, not been successful in treatment of pyorrhœa alveolaris with vaccines, nor in acute gonorrhœa.—Mr. W. McAdam Eccles said that in many chronic affections the effects of vaccine were truly marvellous. For B. coli infections of the urinary tract vaccine therapy was very helpful.—The President said: "An authority once said in the future there would be no other method but vaccine treatment. Dr. Pritchard does not look at it as a panacea for all diseases, and has seen it produce an exacerbation. I am conservative both in politics and medicine. I admit it is an enormous advance. In my own experience many results have been the reverse of satisfactory. For instance, in acne, six of the worst cases I have seen have been made worse by vaccines; two of these are disfigured for life by the treatment. Acne can be cured by common-sense and rational treatment, external and internal. As regards boils, I fail to see why any case should be treated by vaccines. Many cases of boils treated by vaccines have recurred."—Dr. J. M. Bernstein, Dr. A. J. Rice-Oxley, Dr. H. Des Vœux, and Mr. Kenelm H. Digby also took part in the discussion.—Dr. Pritchard replied.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 1st, Mr. W. Morley Willis, the President, being in the chair.—Dr. J. W. Scott, in opening a discussion on General Anæsthetics, said that undoubtedly chloroform was the most dangerous anæsthetic employed, it having a death-rate of 1 in 3000. Surgical procedure played an important part in shock, especially if the patient were only partly under the influence of chloroform. It had been found that cases of death after chloroform contained a large percentage of acetone and diacetic acid in their urine. This acid poisoning occurred also in diabetes, acute yellow atrophy of the liver, and in phosphorus poisoning. As a prophylactic against chloroform fatality it was advisable to prepare the patients by giving glucose, avoiding prolonged fasting, by washing out the rectum and giving bicarbonate of soda and glucose to those patients whose urine contained acetone and diacetic acid. As regards ether, it was more difficult to administer, safer in its immediate effect, but very often led to serious pulmonary complications. The open method was the best method of administering it, and he had used it frequently in children without causing any bronchitis. A mixture of chloroform and ether was the most satisfactory of all, as it maintained a more constant blood pressure.—Dr. R. Aldersen said the death-rate of chloroform was 1 in 2500, that of C.E. 1 in 5000, and of ether alone 1 in 13,000. Therefore chloroform must be the most dangerous method. He advised the members not to limit themselves to one anæsthetic. He preferred giving a mixture of ether and chloroform by the open method. This did away with all the objections of a Clover and rendered the patient less liable to post-anæsthetic vomiting. The mixture should be slowly given. The chief objections to the open method of giving ether were: (1) the long induction period; (2) the difficulty of obtaining complete muscular relaxation; (3) the difficulty of getting some patients under its influence; and (4) the liability to subsequent chest complaints. He should advise ether to be always given for minor operations.—Dr. Amelia M. Le Pelley, remarking that emergency cases took anæsthetics well, thought the ordinary preparation of patients was too drastic; operations should be performed, when possible, in the morning and fright reduced as far as possible. As a rule the temperature of the operating room was too high. As the ordinary reflexes varied so much with different patients she paid most attention to the breathing.—Mr. Kenneth Black said that he had seen 30 patients die on the operating table—23 of these after chloroform. In all cases the cause of death was an overdose of the anæsthetic, some, of course, being more susceptible than others. He noticed that the special anæsthetists had a much smaller mortality. Most of the recorded fatalities occurred in institutions where the death was always followed by an inquest; he was quite sure that in general practice many deaths were unrecorded.—Mr. T. B. Gilbart-Smith always started anæsthesia with A.C.E. mixture and generally continued with chloroform. In abdominal operations the patients stood the operation better if they were deeply under.—Dr. J. A. Waring preferred A.C.E., and believed in giving as little as possible. He found heart disease no hindrance to giving an anæsthetic if it was administered slowly and carefully.—Mr. R. G. Hogarth preferred to have ether administered by the open method, but mentioned one case which was followed by acute bronchitis.—Mr. R. Wood (Ilkeston) always gave chloroform in midwifery cases with success.—Dr. W. Hunter preferred A.C.E. and regarded chloroform as most dangerous. He thought that the services of newly qualified assistant house surgeons were wrongly employed.—Mr. H. Bell Tawse said that chloroform was the only satisfactory anæsthetic in nasal cases. Ether caused too much hæmorrhage and mucus formation.—The President thought that chloroform was perfectly safe in the hands of skilled men. It certainly was quite pleasant to take and produced the best results from a surgeon's point of view.—Dr. Scott and Dr. Alderson briefly replied.

THE NEW LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held at 49, Berners-street, W., on March 9th, Dr. P. S. Abraham, the President, being in the chair.—Mr. Dennis Vinrace showed a man with Cicatricial Alopecia simulating Alopecia Præmatura.—Dr. Tom Robinson showed a man, aged 46 years, with Tubercular Lupus of the Back of the Hand, resulting from an injury 26 years previously.—Dr. David Walsh showed a little girl aged 9 years with Dermatitis Herpetiformis of three months' duration, a similar attack having occurred two years ago.—Dr. Morgan Dockrell showed: (1) A young woman, aged 19 years, with Bazin's Disease of four years' duration; and (2) a case of Ulerythema of the Scalp in a man aged 31 years; the left ear was also slightly affected.—Dr. W. Knowsley Sibley showed: 1. A woman, aged 31 years, with Erythema Bullosum. The attacks commenced at the age of 8 years, and the present one was widespread, many of the older lesions being scarred and slightly pigmented. 2. A case of Psoriasis in a man aged 38 years in which the mucous surface of the glans penis was affected, in addition to other parts of the body.—Dr. W. Griffith showed: 1. For Dr. M. K. Hargreaves, a woman, aged 25 years, of English nationality, with extensive Favus of the Scalp and Trunk which had existed since infancy. Much improvement had taken place from X ray treatment. 2. The young man shown at the previous meeting of the society with Mycosis Fungoides, to illustrate the improvement as a result of X ray treatment. The diagnosis had been confirmed microscopically.—Dr. G. Norman Meachen showed: 1. A Jewess with Ulerythema of the Scalp of four years' duration. 2. A case of Papulo-necrotic Tuberculides in a young woman, aged 30 years, affecting the legs and also the backs of the hands, where the condition was typically that described as folliclis.

CHILDREN'S HOSPITAL, BIRMINGHAM. — The management committee reports that the number of patients treated during 1910 was 15,261, as against 15,240 in 1909. The past year would always be remembered with gratitude by reason of the opening of a King Edward VII. Memorial Fund by the proprietors of the *Birmingham Daily Mail*, who decided to devote the proceeds to the erection of a statue in memory of the late King, and to place the balance at the disposal of the children's hospital committee. It was hoped that the amount would reach £30,000. Had it not been for this the future of the hospital would have been a source of great anxiety with the present lease expiring and very little prospect of sufficient funds being raised in time to erect new buildings elsewhere. The plans of the new hospital were not finally settled. The open-air treatment which it was hoped to make a special feature of the hospital involved the planning of the building on novel lines, and improvements in design and arrangement continually suggested themselves. It was hoped that the actual building operations would be commenced in the spring of next year. The accounts for the year showed a deficiency of £12 as compared with £466 for the preceding year. To this current deficiency had to be added the accumulated deficiency of £605 brought forward from last year, making £617 to carry forward. Operations on in-patients numbered 378, and on out-patients 2558, the latter being an increase of 483 on the previous year. There were 143 deaths among in-patients, giving a death-rate of 14·54 per cent.

Reviews and Notices of Books.

The Principles of Gynæcology. By W. BLAIR BELL, M.D., B.S. Lond., Assistant Gynæcological Surgeon, Royal Infirmary, Liverpool. With 6 coloured plates and 357 illustrations in the text. London: Longmans, Green, and Co. 1910. Pp. 551. Price 21*s.*

IN writing this work the author has endeavoured to present a complete and modern survey of the foundations on which gynæcology is established. We may say at once that he has succeeded very well and has written a concise and readable text-book of much merit. It is drawn up on a simple and logical arrangement which certainly gives, as Dr. Blair Bell claims, greater lucidity and more consecutive reading than the classification usually adopted.

The first chapter contains a short but interesting account of the evolution of the female genital organs, and is followed by a good description of the anatomy of these organs. We notice that the author is in favour of the view, the wrong one in our opinion, that the cells of the membrana granulosa are derived from the stroma of the ovary. We have little doubt that the conclusions of Waldeyer, Schäfer, Nagel, and Van Winiwarter are correct, and that they are right in maintaining that these cells and the interstitial cells are in reality derived from the germinal epithelium of the ovary. This view finds acceptance from the great majority of modern workers, and to us this mode of origin appears much more consistent with the theory that the interstitial cells play an important part in the production of the internal secretion of the ovary. In the chapter dealing with the physiology of menstruation Dr. Blair Bell puts forward his view that the calcium metabolism of the body is largely concerned in the production of this function, and that the ductless glands also play an important part in the genital functions and in controlling the calcium metabolism.

After a chapter on the methods of examination of the pelvic organs, which is well arranged, a section is devoted to the congenital derangements of the normal anatomical conditions, followed by one on the acquired derangements. The method employed by the author of introducing a Hodge or ring pessary is not, in our opinion, the best, since it necessitates the introduction into the vagina of the index finger as well as the pessary—a needless complication. It is a pity that nothing is said as to the mode of action of a Hodge pessary, as this is a point on which much confusion exists among students. With the recommendation that the abdomen should be opened in cases where the gravid retroverted uterus is impacted, and replacement is impossible, we disagree. It is the usual experience in these cases that no such treatment is necessitated. In the section dealing with the treatment of chronic inversion of the uterus nothing is said of hysterotomy by the vagina instead of abdominal section.

In discussing the complications of fibromyomata uteri the statement is made that these tumours tend to produce relative or absolute sterility. This is very far from being proved, as in the majority of cases the sterility precedes the development of the fibroid tumours, and cannot therefore be caused by it. How does Dr. Blair Bell determine that there is no room in the abdomen for the development of a fœtus when large fibroids are also present? The softening that these tumours undergo during pregnancy is often so marked that it is most difficult to say to what extent they will or will not yield and give way to the developing fœtus. In the operative treatment of cases of retroversion of the uterus Gilliam's operation of drawing the round ligaments into the abdominal wall, and fixing them there, is strongly recommended, and according to the author gives good results. The section dealing with the main principles of gynæcological operations is a good one, and there is no unnecessary detail. In the two appendices, Electro-therapeutics in Gynæcology, contributed by Dr. Curtis Webb, is considered in the first, and in the second a useful classification of the causes of certain symptoms is given.

The book, as we have said, is a good one, and if we have devoted some space to what we consider its shortcomings, we are none the less aware of its merits. The author lays rather too much stress upon the quite unproved theory of the great importance of the calcium content of the blood, and the large part played by the secretions of the ductless glands in the causation of certain gynæcological conditions, but the lapse of time will prove or disprove the correctness of his views. The work is carefully printed, the index is accurate, and the illustrations are well reproduced. In the figure on p. 82, giving the levels of the fundus uteri at the different months of pregnancy, it is a pity the author has not relied on his own observations instead of copying the illustration from another book, and adopting the average positions as given by Whitridge Williams in his text-book of midwifery, as they are certainly inaccurate.

Appendicitis and other Diseases of the Vermiform Appendix. By HOWARD A. KELLY, M.D. With 215 original illustrations, some in colours, and 3 lithographic plates. London and Philadelphia: J. B. Lippincott Company. 1909. Pp. 502. Price 25*s.*

A FEW years ago we reviewed a very elaborate work on the vermiform appendix which Dr. Kelly wrote in conjunction with Dr. Herdon. This formed a storehouse of facts and information relating to this organ, but we felt while reading it that a smaller work would prove more widely useful, and therefore are glad that the present work has been prepared. Not that the present volume is small, but it is decidedly less voluminous than its predecessor. After an interesting chapter on the history of our knowledge of the diseases of the appendix its anatomy is considered. Diagrams are given illustrating almost every conceivable part of the subject, and especially good are the illustrations showing the vascular supply of the organ. The bacteriology is next described and the more important organisms are discussed fully. The pathological section is very complete and the various affections from which the appendix may suffer are described. As to the etiology, Dr. Kelly tells us that he is acquainted with several instances in which an appendicitis was apparently promoted by the attachment of the appendix to the site of a previous operation. The disease appears to be rare amongst the negro race. Dr. Kelly considers disorders of digestion to be the most common exciting causes, and trauma is another factor which he looks upon as important. He agrees with all other observers in considering the presence of foreign bodies in the appendix a very rare cause indeed. In almost a thousand cases of appendicitis in the Johns Hopkins Hospital foreign bodies were found only in four instances. The clinical history and the diagnosis are then described. A valuable account is given of the leucocytes in appendicitis; Dr. Kelly lays very great stress on a differential count, and he considers an increase of the neutrophiles important, especially if associated with a decrease of the eosinophiles.

As to the treatment previously to operation, we are told that it is a good plan, if operation cannot be immediate, to give the patient just enough opium to relieve pain and afford a little ease. We agree that opium may be of use, but we think it would have been as well to mention that it is inadvisable to give opium before the case is seen by the surgeon who may have to operate. Opium may have a disastrous effect in masking the symptoms. We concur with

Dr. Kelly when he states that the ideal time for operation in acute appendicitis is within the first few hours after the appearance of symptoms, but unfortunately it is very exceptional for the surgeon who may have to operate to see a case in this period.

We need not follow the author through the descriptions of the operation. The various incisions which have been recommended are given, and in the case of each Dr. Kelly mentions its special field of usefulness. The chapter on post-operative sequelæ is good, and we may also mention with special approval the account of the relation between appendicitis and gynæcological affections. The chapter on the medico-legal aspects of appendicitis is necessary nowadays, when compensation arising for injuries received by workmen in the course of their employment is enforced by law. In this connexion the question of the relation of trauma and appendicitis deserves special attention.

We appreciate the extensive index of names, though we may point out that as a rule it is far better to have only one index to a book, but if necessary the different classes of items included in it may be distinguished by the employment of different forms of type.

A Treatise on Materia Medica and Therapeutics, including Pharmacy, Dispensing, Pharmacology, and Administration of Drugs. By RAKHALDAS GHOSH, L.M.S., Calcutta University, Lecturer on Materia Medica, Calcutta Medical School. Edited by J. T. CALVERT, M.B. Lond., M.R.C.P. Lond., Lieutenant-Colonel I.M.S., Professor of Materia Medica and Therapeutics, Medical College of Bengal, &c. Fourth edition. Calcutta: Hilton and Co. 1910. Pp. 742. Price, rupees 5, or 7*s.* 6*d.*

A TREATISE on materia medica must from its nature be largely a compilation, and its value will be in proportion to the care and time expended in its preparation. Judged by this standard, Mr. Ghosh's book is a remarkable one, and bears striking testimony to the arduous and assiduous labours of its author. Previous editions have been edited by Lieutenant-Colonel Lukis, I.M.S., owing to the death of Mr. Ghosh, but this, the fourth edition, has been revised and edited by Lieutenant-Colonel Calvert, who acknowledges in the preface the help afforded him by Dr. B. N. Ghosh, the son of the author. The book is divided into seven parts, of which the first is devoted to materia medica proper. The general characters of drugs are described, their composition and impurities are discussed, and the various pharmacopœial and non-official preparations are tabulated, with their composition, strength, and doses when used internally. The second part deals with pharmacy and dispensing, the third with the methods of administration of drugs. Both of these abound in useful practical hints and valuable suggestions, difficulties in dispensing and pitfalls in prescribing being carefully indicated. The general pharmacology of medicinal substances forms the subject of the fourth part, in which drugs are classified according to their actions upon the different systems and organs of the body, drugs with a similar action being arranged in tables.

The major part of the book is occupied by a detailed consideration of the official remedies, including those in the Indian and Colonial Addendum to the Pharmacopœia, and of many unofficial ones. Their nature, source, general characters, official and non-official preparations, and doses are given, and then their pharmacology and therapeutics are discussed. In the case of drugs of Indian origin their names in the various Indian languages are given. Under the heading of therapeutics the chief uses of the drugs are indicated, and frequently prescribing hints are added in regard to the best methods of administration and sometimes actual prescriptions. The drugs in this section are considered in alphabetical order. The general principles of serum therapeutics and of treatment by vaccines form the subjects of a special section, in which all the chief methods of protective and curative treatment by these substances are discussed. The various applications of organotherapy are also described. A full and convenient index is appended.

Mr. Ghosh's book is a most useful work of reference, and as the material is well arranged, and the information given is generally reliable, it should prove of value to the practitioner as well as to the student.

Outlines of Zoology. By J. ARTHUR THOMSON, M.A. Fifth edition. Edinburgh, Glasgow, and London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 855. Price 12*s.* 6*d.*

THE above edition of this well-known text-book is rather more than 200 pages longer than the first edition, which appeared in the year 1892. From this increase, which is obviously very great, we can measure in some degree the extremely rapid advance of zoological science in the last 18 years. For the scope of the work has not changed in any respects and about the same ground is covered. The vast increase of knowledge of fact has, however, compelled the author to extend his accounts of the various groups of animals at the expense of the more general parts of the treatise, and it is not without interest to observe the proportions which the classes and orders of the animal kingdom bear to each other in the present and in the first edition of this handbook. We find on a comparison of the space devoted by Professor Arthur Thomson to individual groups that the sections devoted to the protozoa, sponges, coelenterates, and worms have on the whole undergone the most considerable increase, a result which entirely harmonises with the progress of recent research. And among the vertebrated animals the account of the fishes is proportionately longer than that of any other group. It is not, of course, possible to base any very accurate statistics upon this summary comparison, but, on the whole, the author appears to us to be expressing the relative importance at the present time as compared with the past of these different orders of invertebrates and vertebrates. Moreover, Professor Thomson is engaged in the instruction of medical and zoological students at the University of Aberdeen, and is not likely from the nature of his avocations to be prejudiced in favour of this group or of that, as might be the zoologist who is only devoted to his own investigations.

It is something of a *tour de force* nowadays to cope with the anatomy of the whole animal department of nature in one volume. To conduct to a successful issue so large an undertaking needs a man fitted, as was said of Dr. Johnson, to grapple with whole libraries. A professor of zoology is really the only person who can, without excessive nervousness, undertake such a task. For in these days of possibly over-examination he has before his eyes the constant fear of "external" examiners, keen to note the deficiencies of his pupils in the most recently acquired knowledge. For the zoologist whose life is mainly spent in research it is not expedient that he should write a general text-book. Though his knowledge of some branch or branches is no doubt both vast and minute its depth shallows rapidly at the boundaries of the field of his own researches. We find, in fact, that Professor Thomson has evidently at his fingers' ends the main facts of zoology, and we have been at pains to test a large number of his statements. Among these there are one or two with which we do not agree. For example, the author

says of the bird that "the two valves between the right auricle and the right ventricle are in part muscular." This phrase seems to us to be misleading. There is but one flap to the valve, which is entirely muscular, and which only surrounds half of the atrioventricular orifice. The figure of the genitalia of the earthworm used is the well-known figure of Hering. But this figure is incomplete in that the receptaculum ovorum is not shown therein, though it must be added that the author has duly mentioned this structure in the text. There is a misleading sentence in the definition of the tapeworms, where these animals are said to possess "hooks, grooves, or suckers," the implication being that only one of these means of attachment is present. This is, of course, an error if it is read literally. But, as has been already implied, the misleading statements are not conspicuous, and the book may be recommended as trustworthy.

Thérapeutique Usuelle du Praticien. By Dr. ALBERT ROBIN, Professor of Clinical Therapeutics in the Faculty of Medicine, Paris. Paris: Vigot Frères. 1910. Pp. 520. Price 8 francs.

A MORE comprehensive title of this large volume would be "Clinical Therapeutics." Dr. Robin has selected certain morbid conditions which yield more or less readily to systematic treatment and examines at length the general considerations which should determine the therapeutic measures to be adopted, and then explains in detail how these measures should be applied. He discusses many diseases of the stomach and intestines, including atonic dyspepsia, chronic gastritis, gastric ulcer, and mucous colitis. He records certain cases characteristic of the condition he is describing, and builds up his remarks on the progress which ensued. Under the heading of diseases of the liver he debates the treatment of cirrhosis of the liver. In speaking of the management of the diet in cirrhosis of the liver he expresses a favourable opinion of the employment of skimmed milk as a sedative to hepatic activity. The treatment of chronic nephritis, of arterio-sclerosis, and of certain nervous affections, e.g., facial neuralgia, and of psychical conditions of digestive origin is also described. The work cannot be regarded as a text-book, but is rather a series of articles on the treatment of separate maladies, of some interest to general practitioners, for whom it is mainly intended.

LIBRARY TABLE.

Medizinal-Berichte über die Deutschen Schutzgebiete für das Jahr 1908-09. (Medical Reports upon the German Protectorates for the Year 1908-09.) With 35 illustrations in the text, 2 maps, and 39 reproductions of photographs. Berlin: Published for the Imperial Colonial Office by Ernst Siegfried Mittler and Son. 1910. Pp. 522. Price, paper boards, 9 marks; bound, 10 marks.—This volume contains reports for the fiscal year ended March 31st, 1909, upon the medical and sanitary administration of Germany's eight protectorates—namely, German East Africa, the Cameroons, Togoland, German South-West Africa, New Guinea, the Caroline Islands, the Marshall Islands, and Samoa. Particulars are given of the medical and sanitary staff serving in each colony, and the hospitals provided for Europeans and for natives are described. Incidence of disease and the mortality from various causes are fully considered, tabular statements being given for each protectorate. Special attention is devoted to communicable diseases spread by infection, like small-pox, and also to those transmitted by the agency of insects, more especially malaria and sleeping sickness. The African colonies from their importance naturally occupy a considerable portion of the space, extending, indeed, to nearly three-fourths of the volume. The diseases of animals, particularly those due to biting insects, are dealt with from the veterinary point of view in some detail. In the African protectorates the subject of sleeping sickness receives due attention. The special report on Trypanosomiasis in East Africa is furnished by Professor Kleine, formerly a member of the German Sleeping Sickness Commission (of which Professor R. Koch was the chief), whose notable experimental work on the infectivity of the glossina palpalis is well known. The reporter on this disease in Togoland is Dr. Zupitza, who gives an account of the work done in that protectorate by the German Commission, and in it he describes the organisation of the campaign against the disease in Togoland, the distribution of the malady and of the glossina palpalis as well as of other tsetse flies in that colony. He discusses the reasons for the hitherto limited diffusion of sleeping sickness in the protectorate and the danger of extension of the infection in the near future. He also describes the measures taken against the fly and for preventing the importation of infection from without. A description is added of the sleeping sickness camps established for the treatment of natives suffering from the disease. After the reports is given a list of the papers published during the year on tropical medicine and veterinary science by the members of the Government medical and veterinary staff, as also by the surgeons attached to the native troops. In the appendix are also given reports on the health of the troops employed in German East Africa and in the Cameroons for the fiscal year 1907–08. The volume contains a considerable amount of information, not only as to diseases in the tropics, but also as to sanitary administration among native populations. The book is plentifully illustrated by sketches, maps, charts, and photographs; there is much in it that is highly interesting and instructive.

The Medical Examination of the School Child. By D. A. CARRUTHERS, M.D. Edin., D.P.H., Education Medical Officer to the County of Buckingham, &c. London: Office of *The Medical Officer*. 1910. Pp. 91. Price 2*s.* 6*d.* net.—This is a handy reprint of articles written originally on request to summarise the conditions of which the school medical officer should take cognizance. Naturally, therefore, the schedule of medical inspection issued by the Board of Education is followed. The author very properly lays stress on the importance of cleanliness of the teeth, and combats the opposition that he seems to have found on the part of "some medical practitioners who consider it is a mistake to clean the teeth of children in elementary schools or to give them directions for so doing." The articles are necessarily somewhat sketchy, and a fuller index is desirable; but the book will prove useful to school medical officers.

Allergie. Von Dr. CLEMENS FRH. VON PIRQUET, Professor der Kinderheilkunde an der Universität Breslau. 30 illustrations. Berlin: Julius Springer. 1910. Pp. 96. Price M.3.60.—It is well known that persons who have suffered from measles, small-pox, or whooping-cough are not usually again affected by the same disease. They are said to be immune. On the other hand, some diseases, like pneumonia and erysipelas, are apt to leave an increased susceptibility to the recurrence of these maladies. This subject, so far, has attracted the attention chiefly of the experimental pathologists. The author has coined the word "Allergie"—not a happy combination—for the clinical picture of this changed reaction—increase or decrease of susceptibility. Richet coined the word anaphylaxy for increased susceptibility. The author in the special part of the memoir gives cases of "serum disease"—by which term he indicates a condition in which a second dose of a serum increases the susceptibility to the serum, either in animals or man. There may, however, be the opposite condition of diminished susceptibility. Leaving experimental pathology, he proceeds to deal

with urticaria, hay-fever, vaccines, and variola, measles, tuberculosis, syphilis, diphtheria and many other diseases in their relation to the injection of various sera. It is an interesting little monograph, based on the author's experience, which should prove useful both to the dermatologist and the physician. The bibliography extends to 272 references to papers dealing with this "change of reaction."

Childhood. Edited by T. N. KELYNACK, M.D. Vict. London: Charles H. Kelly. 1910. Pp. 152. Price 1s. net.—This is the second of a series of National Health Manuals, presenting to those interested or engaged in social service special aspects of personal, domestic, or national well-being in non-technical language. It is recognised that social reform is still in an experimental stage. After an introduction on Childhood by the editor the following subjects are considered: the Growth of Children, by Dr. G. F. Still; the Psychology of Childhood, by Dr. W. B. Drummond; the Hygiene of Child Life, by Dr. Leonard Findlay; A Child's Diet, by Dr. J. G. Emanuel; the Preventable Diseases of Childhood, by Dr. John McCaw; Tuberculosis in Childhood, by Dr. Clive Rivière; Alcoholism and Childhood, by Dr. G. Basil Price; Dependent Children, by Dr. Frances M. Dickinson Berry; Prevention of Cruelty to Children, by Dr. T. Eustace Hill; Legal Protection of Childhood, by Mr. Digby Cotes-Preedy; and Moral Health of the Child, by Dr. Mary Scharlieb. The appendices contain bibliographies classified according to each subject. The chapter on the moral health of the child particularly contains much that though in no wise new is lamentably overlooked by too many on whom the task of the bringing up of children devolves.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on March 9th, Mr. BUTLIN, the President, being in the chair.

In accordance with the recommendation from the Board of Examiners in Dental Surgery it was resolved that the first professional examination for the Licence in Dental Surgery shall consist of two parts—Part I., Mechanical Dentistry, and Part II., Dental Metallurgy, and that these parts may be taken together or separately.

A report was received from the museum and finance committees in which it was recommended that the specimens illustrating general pathology be exhibited on the ground floor of Room III. of the museum, and that the librarian's old house be reconstructed to provide additional accommodation. The report was approved and adopted.

A letter was read from Mr. C. H. Golding-Bird, the representative of the College on the Central Midwives Board, reporting the proceedings of that Board during 1910. The best thanks of the Council were given to Mr. Golding-Bird for his services as the representative of the College.

The PRESIDENT reported the delivery of the Hunterian Oration by Mr. Edmund Owen on Feb. 14th, and it was resolved that the best thanks of the Council be given to Mr. Owen for his oration, and he was requested to publish it.

The PRESIDENT reported the delivery of the various lectures—Hunterian Lectures and the Arris and Gale Lecture. After much discussion it was resolved—

That, as it has been found to be impossible to proceed with the suggestion adopted by this College for combined examinations for medical degrees by the Royal Colleges and the University, the Council do not lay any detailed proposals before the Royal Commission, but instruct their delegates, besides stating their individual views, to point out:—

1. The disability under which London medical students are placed owing to the difficulty of obtaining degrees in the Faculty of Medicine of the University, a disability not experienced in other parts of the United Kingdom.

2. The action taken by this College in the past with the object of removing this disability.

3. Its continued willingness to coöperate in any scheme for making the degrees in the Faculty of Medicine more accessible to London medical students.

The delegates are Mr. Butlin, Sir Henry Morris, and Sir Alfred Pearce Gould.

New Inventions.

A VAGINAL GUIDE FOR HYSTERECTOMY.

IN the performance of total hysterectomy it is often of value to be able accurately to define the limits of the vagina, and I have found the instrument here described of service.

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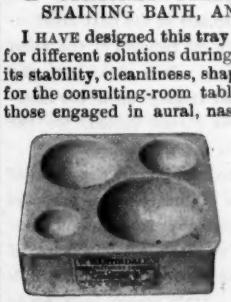
A straight handle, 10 inches in length, carries at one end a flat piece slightly curved like the end of a duckbill speculum which fits the vaginal fornix. After cleansing the vagina this is introduced into the anterior fornix. When the broad ligaments have been ligatured and divided the nurse or third assistant pushes the instrument upwards and the vaginal limits are at once well defined. After ligaturing the uterine arteries the anterior vaginal wall is divided upon the flat surface, this giving a firm base upon which to cut. The assistant then turns the instrument into the posterior fornix and the posterior vaginal wall is similarly defined and divided. I have found this manœuvre of assistance not only in defining the position of the vaginal incision but in shortening the time expended in determining the extent of tissue to be removed. It is equally useful if the incision is made by the cautery, as the metal plate allows one to burn through the vaginal wall with confidence that no underlying parts will be injured. With reference to the possibility of infecting the abdominal wound when the cancerous uterus is removed, I think this would be obviated by the following procedure. Before the operation begins a heavy tenaculum is placed on the cervix. As soon as the uterus is freed from its connexions, the organ is withdrawn per vaginam, unless, of course, of a very large size. This will obviate the necessity of curetting and closing the mouth of the uterus and save a certain amount of valuable time. The instrument is supplied by Messrs. Down Bros., of St. Thomas's-street, London, S.E.

P. CLENNELL FENWICK, M.D. N.Z., F.R.C.S. Edin.
Christchurch, New Zealand.

A COMBINED PORCELAIN SOLUTION TRAY, STAINING BATH, AND EMBEDDING MOULD.

I HAVE designed this tray for use as a temporary receptacle for different solutions during minor operations. By reason of its stability, cleanliness, shape, and size it is specially adapted for the consulting-room table of all practitioners, especially those engaged in aural, nasal, laryngeal, ophthalmic, gynæcological, or dental work. Its use will be found to economise the employment of cocaine, adrenalin, and other costly solutions, while it is readily cleaned and cannot be upset. It is specially useful in preparing "606" for syringe injection, and to pathologists for embedding tissue of all sizes either in paraffin or celloidin, while the same time it affords excellent staining baths for sections. The cells should be wiped out with a very thin film of vaseline before embedding tissues. These wells are of 3, 5, 15 and 20 c.c. capacity, which experience has proved to be the most convenient sizes for the different purposes for which they may be employed. The dish can be obtained from Messrs. W. Martindale of 10, New Cavendish-street, W.



WYATT WINGRAVE, M.D. Durh.
Chenies-street, W.C.

DEVON AND EXETER DENTAL HOSPITAL.—Mrs. Nosworthy of Dawlish (Devon) has given £500 to the Devon and Exeter Dental Hospital. This makes a total of £3000 which Mrs. Nosworthy has given to this charity during the last few years.

THE LANCET.

LONDON: SATURDAY, MARCH 18, 1911.

The Problem of Sunday Entertainments and the Metropolitan Hospital Sunday Fund.

As will be known to most of our readers from articles in the daily press, or as may be learned from a report in this issue of THE LANCET, a serious division of opinion was witnessed at a meeting of the Council of the Metropolitan Hospital Sunday Fund held at the Mansion House on Friday in last week. The gathering of the Council, which was presided over by the LORD MAYOR, was a strong one, and the principal reason for the meeting was the fact that the attitude of certain hospitals in associating themselves with cinematograph entertainments held on Sunday, and benefiting by the receipts, had come to the unfavourable attention of some supporters of the Fund. There were members of the Council of the Fund, both clerical and lay, who held such association to be inadvisable on various grounds, while certain leading churches, Nonconformist as well as Church of England, had signified their feeling in the matter in an unmistakeable way by asking permission to allocate their contributions definitely to those hospitals which were not deriving profit from these shows. The matter had been considered previously by the General Purposes Committee of the Fund, whose attitude was shown by a recommendation to the Council to adopt a resolution disapproving of hospitals, while receiving grants from the Fund, being concerned in any movement "contrary to the spirit of its supporters," and suggesting the penalising such hospitals at the next distribution of awards, if any diminution in the receipts of the Fund seem attributable to Sunday shows. It is clear that the decision of the Council must depend largely upon the interpretation put upon the ambiguous phrase quoted, for the spirit of a movement can seldom be exactly defined.

Archdeacon SINCLAIR moved the adoption by the Council of the views and recommendations of the General Purposes Committee, although he disclaimed any intention of condemning in the name of the Fund the establishment of Sunday theatrical shows at the various cinematograph establishments. Archdeacon SINCLAIR'S speech was made from the point of view that the integrity of the Fund would be impaired and possibly its future endangered by not dealing with a situation, on which there were avowedly great difference of opinion, in the manner indicated in his resolution. He pointed out that among the supporters of the Fund there were people who objected to the holding of these entertainments on Sunday, either because they considered them to be an evasion of the law or because they objected to such entertainments being held on the day of rest. He considered that for the salvation of the Fund it was necessary to appease the apprehensions of this large section of its supporters by registering formal disapproval of any hospitals receiving grants from the Fund while they are concerned in a movement which had caused a scandal among some of their constituents. Archdeacon SINCLAIR put forward his views, and those of the General Purposes Committee, as might have been expected from him, with no narrow Sabbatarianism; as far as was possible for a distinguished clergyman, he backed up the recommendation of the General Purposes Committee from the point of view of expediency. The same may be said of his main supporter, Sir ALFRED PEARCE GOULD, who held that the action of those hospitals which were interested in these shows and received money therefrom was perilous, in that a charity which can trade for profit may lose certain of its eleemosynary support. Mr. SYDNEY HOLLAND moved an amendment that the Council of the Fund should take no action in the matter, and his vigorous speech showed how deep is the difference of opinion on the Council on the matter, a fact which furnishes obvious reasons why the Council should not attempt to come to any decision at all in a hurry. Like Archdeacon SINCLAIR, Mr. HOLLAND also spoke largely from the point of view of expediency, believing that the recommendation, which aimed at consolidating the Fund by speaking in behalf of the spirit of the foundation, was certain to act in the exactly opposite manner and to alienate, in a degree which might be disastrous to the Fund, the goodwill of the public by which the Fund exists. He admitted that the London Hospital, of which he is chairman, received a large annual sum from Sunday entertainments, and considered that it was no business whatever of the Metropolitan Hospital Sunday Fund to attempt to dictate to any charity what should be the sources of its receipts by threatening to consider such sources when making the annual awards. Mr. HOLLAND was immediately found to be quite right in believing that the recommendation of the General Purposes Committee had behind it no solidarity of opinion, for two well-known clergymen, the Rev. H. R. GAMBLE and the Rev. C. H. GRUNDY, seconded and supported his amendment, thereby showing that some clergymen considered that money obtained from Sunday cinematograph shows had not an origin so discreditable as to make it necessary for the Council to punish by any system of fines those charitable institutions which benefited thereby.

An interesting debate led, as will be seen by our report, to the adoption in the first instance of the recommendation of the General Purposes Committee, but it was agreed to refer the matter back to the General Purposes Committee, so that Mr. SYDNEY HOLLAND, who had previously been, through some blunder, deprived of the opportunity, should be able to place his views in detail before the committee. We trust that the committee will think very seriously before forcing the Council to action upon this matter. A very serious situation has arisen in one of the most important of the metropolitan charities, a charity the good work and success of which we have always had deeply at heart, and an ill-considered movement may do serious damage. It must be admitted at once that those responsible for the Fund are in a very difficult situation. No course that they can possibly take will please all their

constituents; the Fund is dependent upon the public, mainly through the churches, for its support, and if the public is not satisfied with the way in which the Fund is administered it will cease to subscribe. How far can the Council allow itself to be swayed by such a situation? Where does honest administration, having regard to the spirit of the foundation, end, and where does mere opportunism begin? We believe that if these questions are faced, the answer will be found different to the one which the Council last week was prepared to give. We are perfectly certain that there are just as many good clergymen and honest observers of religious tenets who are for as who are against the holding of public entertainments on Sunday. This being so, the Council cannot be accused of losing sight of the religious nature of the foundation of the Fund because in a religious matter where there is room for honest differences of opinion it takes one side more than another. On mere grounds of expediency the Council would be well advised not to move in the matter. We cannot imagine good Christians withholding their subscriptions because other persons, equally good Christians, interpret the ties of religion in a looser manner than themselves. The views of any persons who consider that the money earned by cinematograph shows is infamous, in the manner in which, say, the revenues were infamous of those bishops who for years farmed the brothels of South London, are hardly worth attending to. It will be gathered from this that we sincerely hope that when Mr. SYDNEY HOLLAND has put his views before the General Purposes Committee that body will alter the form of its recommendation. It is our opinion that the Metropolitan Hospital Sunday Fund, without derogating whatever from its high functions as a mainly religious foundation, can well afford to take no action in the matter of Sunday shows.

Polycythæmia and Plethora.

THE conception of plethora occupied an important place in the pathology of the early and middle parts of the last century, but owing to the experiments of LUDWIG and his pupils upon the effects of artificially increasing the total volume of the blood by transfusion it fell into discredit, and the adjective plethoric applied to the individual of rotund and rubicund appearance was practically all that remained of it. The study of the cytological characters of the blood, more especially by hæmacytometric methods, showed, however, that variations in the individual elements of the blood were common, and on this foundation the modern work upon the various anæmias and upon conditions of leucocytosis is based. It was soon found that the number of red corpuscles might under certain conditions be increased, and to this alteration the names of polycythæmia, polycythæmia rubra, erythrocytosis, and polyglobulia have been variously applied. So early as 1854 it was recognised by J. VOGEL that such a condition might be relative or absolute, depending upon the total number of red corpuscles in relation to the total quantity of the blood. An interesting examination of conditions of polycythæmia and plethora and of their relations to one another is given in a small book[1] recently published by Professor H. SENATOR of Berlin. He differentiates conditions of oligæmia with relative polycythæmia, produced by severe loss of fluid from the body or by the exudation of abnormally great quantities of plasma from the vessels into the lymph spaces, from conditions of plethora serosa—i.e., polyæmia with relative oligocythæmia, and plethora vera—i.e., polyæmia with or without a relative polycythæmia. He goes on to point out that modern teaching in regard to this matter practically dates from the recognition by H. VAQUEZ of the peculiar chronic disease often called after him and characterised by cyanosis, enlargement of the spleen, and polycythæmia, which is more generally known as polycythæmia rubra megalosplenica. Professor SENATOR lays considerable emphasis upon the importance in any condition in which excess of red corpuscles is a feature, of repeated determinations of the red corpuscles, and of collecting the blood for counting from different parts of the body in order to recognise those conditions of polycythæmia which are physiological or which are merely temporary.

A physiological polycythæmia occurs in conditions where considerable loss of fluid takes place without being replaced by drinking, as, for example, after severe muscular exertion and hot-air baths. It may also be observed after heavy meals rich in protein-containing substances, in conditions of convalescence after bleeding and after certain blood diseases, and in newly born infants. Different natural or artificial conditions — living in rarefied air and in high mountain districts, or in the neighbourhood of the sea, and the use of KUHN'S suction-mask—all lead to an increase in the number of red corpuscles. VIERORDT in 1854 described a similar condition in marmots during hibernation. A condition of polycythæmia which must be regarded as pathological occurs as a secondary change in a variety of abnormal states. Among the more important of these may be mentioned a relative polycythæmia occurring after abstraction of fluid from the body by severe vomiting and diarrhœa and by diabetes insipidus, the marked increase in the red corpuscles in conditions of cyanosis resulting from congenital heart disease, emphysema, and that occurring with certain intoxications and infections, especially in poisoning by phosphorus, carbon monoxide, benzine, and certain tar products. It can also occur after administration of tuberculin prepared from the human type of bacillus and in certain cases of chronic tuberculosis, particularly in those in which the spleen is affected. Less commonly it has been seen in association with influenza, trichinosis, malaria, chronic interstitial nephritis, Addison's disease, neurasthenia, and chorea. It is probable here that the excess of red corpuscles is due to diminished oxygen tension in the blood, leading to increased activity of the blood-forming tissues. When all these conditions have been excluded there still exist two forms of primary or idiopathic polycythæmia—viz., the form already mentioned as having been described by VAQUEZ, and a form charactered by high blood pressure and usually by enlargement of the left ventricle, but without splenic enlargement, and known as polycythæmia hypertonica or Geisböck's disease. On the basis of about 50 cases of the former condition at present recorded Professor SENATOR reviews its general clinical and pathological characteristics. The subjective symptoms of which the patients usually complain are vertigo, sensations of blood

[1] Polyzythaemie und Plethora (Polycythæmia and Plethora), von Professor Dr. H. Senator, Geheimer-Medizinrat in Berlin. Berlin: August Hirschwald. Pp. 80. Price M.2.40.

rushing to the head, attacks of headache and sickness like migraine, feelings of fatigue and heaviness of the limbs, dyspnœa, and disturbances of digestion. Among the objective signs is a dark-red appearance of the face, ears, and hands, which is not like ordinary cyanosis. It varies in degree, increasing when the patient is warm. TRUNECEK has drawn attention to a prominence of the supraclavicular fossæ caused by the distension of the blood-vessels, especially the veins. There is often a tendency to hæmorrhage from the nose and gums. The spleen in typical cases is more or less enlarged, but its size may vary in the same patient at different times. Examination of the blood reveals an excess of red corpuscles, the highest values recorded being 13,600,000 and 14,180,000 per cubic millimetre. The specific gravity of the blood may be greater than normal, and values up to 1072 have been noticed. The viscosity of the blood is always greatly increased, even up to four times the normal. Analyses have shown that the total solids of the blood, the iron, fats, and lecithin, are all considerably increased, the blood serum on the other hand being lower in its specific gravity and poorer in solid constituents than the normal. The hæmoglobin is increased usually in about the same proportion as the red corpuscles. The oxygen capacity of the blood is not diminished and may be greatly increased, unlike the condition of polycythæmia occurring in cyanosis from congenital heart disease, in which it is diminished. Recent observations have established that there is an increase in the total quantity of blood, and that therefore the condition is one of true plethora, which, however, does not, as might have been expected, lead to an increase of blood pressure or to cardiac hypertrophy. Professor SENATOR describes the results of some interesting observations upon the respiratory gaseous exchanges in this disease, which are found to be greatly increased. This is attributed to some specific stimulation of the tissue respiration and not to the increase in the red corpuscles and in hæmoglobin. The pathological changes found after death comprise general plethora, enlargement of the spleen, and certain changes in the bone marrow. After reviewing the chief facts in this connexion, Professor SENATOR concludes that the condition is due to a primary disturbance of function on the part of the blood-forming organs.

The other form of primary polycythæmia—viz., Geisböck's disease or polycythæmia hypertonica—has been much less often observed, and only about a dozen undoubted cases are on record. The symptoms are not unlike those of the splenomegalic form, but in about half of the cases apoplectic seizures occur and chronic nephritis and arterio-sclerosis are much more frequently apparent. The patients usually present a typical apoplectic habit of body. Although polycythæmia is obvious and the appearances suggest a true plethora, actual determinations of the total quantity of the blood have not yet been made in this condition. The blood pressure is greatly increased, being often above 200 millimetres of mercury, and values as high as 320 have been observed. Various hypotheses have been put forward in explanation of the pathogenesis of these cases, but none of them are satisfactory. NÄGELI supposed the high pressure was due to increased viscosity of the blood, but it has been shown that a similar increase occurs in the splenomegalic form without rise of blood pressure. MÜNZER attributed the polycythæmia to general arterio-sclerosis, but, as has been pointed out by GEISBÖCK himself, arterio-sclerosis is not a constant accompaniment of this disease. Professor SENATOR suggests that the two varieties of polycythæmia may prove to be related to one another, since cases of polycythæmia without splenic enlargement and with normal blood pressure occur on the one hand, and, on the other hand, splenic enlargement in the splenomegalic form is variable and is not necessarily an early feature of the cases. He suggests a careful search for possible transition cases. It is of interest in this connexion to note that in a paper by Professor R. STAHELIN,[1] published since Professor SENATOR'S book, records are given of seven cases of polycythæmia with increased blood pressure observed during one year, an observation which suggests that the hypertonic form of polycythæmia is more common than the number of cases on record might suggest. The subject is one of practical interest, and offers a field for further observations which may yield valuable information regarding the pathology of the blood-forming organs.

A Question for Italy.

THE "Third Italy," which celebrates in the year now passing the fiftieth anniversary of the proclamation of its independence, has still much leeway to make up if it would justify, morally and socially, its subversion of the old order in favour of the new. Crime, of a frequency and an atrocity scarcely to be paralleled in its mediæval or pagan predecessors, is as yet a constant quantity in its daily life, maintaining for it what one of its public notabilities has called a sinister priority among its Latin sisters in rapine, brigandage, and homicide itself. No page more sombre in its recent history has, however, been yet disclosed to a painfully impressed world than that which records the assassination of a dama d'onore in waiting on Queen ELENA, the rank and profession of the assassin, the previous history of the latter, and the incidents preparatory to the crime. The "serena e modesta austerità" of the Italian Court, as the leading Roman journal calls it, a moral atmosphere maintained, if not indeed created, by an exemplary King and Queen, throws the lurid tragedy into still stronger relief, and explains the urgency with which, in the Chamber of Deputies, the War Minister was asked to account for the presence in the army of an officer so degraded as the assassin, who, himself a patrician like his victim, had forfeited his right to hold command in a distinguished regiment and enjoy free access to the Royal palace. The Minister could only admit that, in spite of repeated admonishment and even punitive discipline, the Baron VINCENZO PATERNÒ was still tolerated in the service, though a notorious evil liver, whose rôle at his native Palermo, at Rome, Florence, Siena, Lucca—wherever, indeed, he was quartered,—was that of the seducer and the extortioner, seduction and subsequent extortion being his "stock-in-trade" to meet the expenses of a life luxurious and self-indulgent beyond his means.

[1] Berliner Klinische Wochenschrift, Jan. 16th, 1911, p. 101.

With the promise to take stringent measures to prevent such scandals in the service as the continuance of abandoned LOTHARIOS on the official staff, the War Minister seems to have satisfied his interpellants, leaving the well-conducted citizen to moralise on the maxim, "Noblesse oblige," and naturally to infer that crime and violence in so-called "good" society must have their counterpart in the less "good." Imitation, indeed, is ever a potent factor towards degradation of character and breach of the law, and, in proportion to the degenerate individual's retrocession to the animal type, the imitative or mimetic instinct becomes accentuated or reinforced. Herein lies the significance of an awful story.

At this moment the superior Italian press, in full recognition of this instinct, is lamenting the publicity given to the tragedy and anticipating with dismay the recovery of the Baron from the wound inflicted by his attempt at suicide, his removal to prison, and thence to the criminal court, where the revolting details of his career and crime will be served up anew with all the particularity and the repetition familiar to Italian tribunals. In the official organ of the Prime Minister, Signor LUZZATTI, the ablest of Italian publicists and men of letters, GUGLIELMO FERRERO, is utilising the occasion to dwell on the "intellectual bequest of CESARE LOMBROSO," and, while alive to the exaggerations of that strenuous pioneer, is insisting on the scientific value of his main thesis—to wit, that anthropology, particularly in backward nationalities like his own, should have State recognition not only in the establishment of university chairs devoted to the subject but in the opportune surveillance of tender youth, in anthropometric examination reinforced by medical inquiry into family history, and in the adjustment of elementary education in harmony with their findings. From Palermo comes testimony as to the type to which the assassin and would-be suicide Baron PATERNÒ belonged—one in which the animal instincts were abnormally and precociously strong,—the unbridled gratification of these inducing a physical and moral deterioration till the adult was already a victim to neurasthenia and morally as well as physically septic. Gambling for high stakes; plunging into the vortex of pleasure uncontrolled by any feeling of professional responsibility, or, indeed, of self-respect; hopelessly enmeshed in the toils of the money-lenders; and sticking at no device for raising funds; paying court to married ladies of his own class, and if possible compromising them till he could extort hush-money to save them from the scandal he had contrived,—such were the methods, such the career, of this young cavalry officer till, on his latest victim, the amiable, accomplished, universally beloved, if weak, Contessa TRIGONA, refusing him a sum which would have ruined her (already sorely reduced in means by his exactions), he decoyed her to an obscure hotel in Rome, and there drove a stiletto into her throat from which she died instantaneously, while the revolver which he discharged below his ear seems to have taken but partial effect. And all this transacted in an aristocratic *entourage*, nay, involving one of the *personnel* of the Court, and in the year when Italy is proclaiming to the world the blessings of the new departure she took 50 years ago! Verily, the cynic may be excused for asserting that sin and crime are a constant quantity, in spite of "progress" and "civilisation" and "culture," but it is the duty of medicine to reinforce the educational efforts necessary to prove the fallacy of the creed that "man was made to mourn" for ever.

Annotations.

"Ne quid nimis."

THE ROYAL SOCIETY OF MEDICINE: THE SOCIETY'S NEW HOUSE.

WE publish this week a brief account of the new house which is now being built for the Royal Society of Medicine on a very appropriate and convenient site where Wimpole-street runs down into Henrietta-street, Cavendish-square. The exigencies of our space have compelled us to reduce greatly the reproductions of the plans, but a key to the size of the various departments is furnished by the noble dimensions of the library. The library extends the whole length of the building, being 110 ft. long, and appears in Fig. 5 on p. 759 as 2½ in. long only. The Council and officers of the society are, in our opinion, to be warmly congratulated on their choice of plans and on the design of their architect, Mr. John Belcher, R.A., which is well shown in the special plate. It now remains for the medical profession to take its part in supporting an institution which is playing, and is destined to play more fully, the rôle of an academy of medicine in this country. The financial position of the society is perfectly clear, and is one that justifies the belief of all who have looked into the matter that great prosperity lies ahead. To some extent, however, that prosperity is bound up in the society's house—it is important that the house should go up quickly and that there should be left behind no legacy of debt. When the society possesses its noble headquarters the membership is bound to increase, but in the meantime the building has to be paid for. The lesson seems to us to be that the intending member should not wait till the house is erected before joining the society, and that the intending donor should take his cheque-book and sit down quickly and write the figure suggested in the parable, or more.

THE END OF THE CHOLERA EPIDEMIC AT MADEIRA.

NEARLY three weeks having elapsed since any case of cholera was reported, Madeira has been declared officially free from the disease. The first cases are believed to have occurred about Oct. 14th, and the nature of the disease was officially recognised only on Nov. 26th. The official returns show that the disease attacked 1769 persons and that the deaths were 556. An analysis of cases which, it is understood, will be issued later by Dr. Carlos França will throw much light on the merits of different modes of treatment, and perhaps also on the manner in which the disease spread amongst the people, but meanwhile the following facts are available and are of general interest. The onset was acute in 75 per cent. of the cases; insidious and gradual in 25 per cent. The duration of the disease was from three to ten days. Cramps during the first 24 hours were present in 95 per cent. The vibrio was found in hardly 10 per cent. in the vomit. A very small percentage lapsed into a quasi-typhoid condition subsequent to the cholera symptoms, a condition which lasted some 10 days. Of five pregnant women four aborted; 10 per cent. of those attacked were known to be habitual alcoholics. Amongst about 350 persons who having been in contact with cholera patients were

placed in isolation, many were observed to carry the bacillus for more than three weeks without any cholera symptoms, but out of 71 nurses and attendants at the lazarette hospital not one contracted the disease or showed the presence of the bacillus in the excreta. Amongst the complications only two or three died from uræmic coma, but many suffered from protracted anæmia. Twelve cases of urticaria were observed, and there were nine cases of intestinal hæmorrhage. There were ophthalmic symptoms, mainly conjunctivitis, in more than 30 instances. The epidemic spent itself amongst the most careless, the dirtiest, and the least instructed of the people; and the general mortality would have been greatly mitigated if the cases had been notified earlier, and if some effective treatment had been possible before collapse set in and before it was attempted to remove patients so gravely ill to a distant hospital. "But all is now over," writes our correspondent on the island. "Holidays are decreed, and Funchal is *en fête*. It becomes us, nevertheless, to press upon the authorities the urgent need of works, both of amelioration and development. During the last few weeks the barometer, standing at a high level, has hardly varied 1-10th of an inch. The temperature has been steady at about 65° F., and the island has been bathed in a dry, gentle, descending current of air. The registered sunshine has been about 10½ hours per day. The hygrometer has shown 8°–10° of difference (dry and wet) at the temperature of 65° F. In a more concrete way the climate is illustrated by the profusion of flowers, the abundance of strawberries and English summer vegetables at this season. Madeira is hardly more than three days distant from England, and the policy of the Government, which in Republican form is working smoothly, should be to make their priceless possession generally available."

PAINFUL DOUBLE TALIPES VALGUS OF TUBERCULOUS ORIGIN.

IT has been known for a good many years that under the term "rheumatism" there lies concealed a number of different causal factors united only in the common clinical features of pain, chronicity, and the absence of marked physical signs in the parts affected. Various micro-organisms have been described and figured by different workers as related to rheumatism; the gonococcus has been proved responsible for some varieties; "painful heel," thanks to skiagraphy, has been successfully operated for; and results have been published showing the success of various vaccines and serums in ameliorating or curing certain conditions. The fact, however, that the tubercle bacillus may be the underlying cause in certain of these rheumatic conditions, more especially of the feet, has not been sufficiently recognised in this country, although so long ago as 1905 Molinar, working under Poncet, published a thesis on the subject.[1] No apology, therefore, is necessary for drawing the attention of the profession to a case of painful double flat foot of tuberculous origin described by Professor Poncet in the *Gazette des Hôpitaux* of Dec. 31st, 1910. The patient was a sempstress, 30 years of age, who came complaining of pains in the calves of the legs and soles of the feet. As a child she had been rather delicate. At the age of six she had eye trouble lasting from 16 to 24 months, and leaving a permanent opacity on the right cornea. Menstruation started at the age of 13, and was regular. In 1901 she had a normal confinement, and it was from that time that she dated the frequent rheumatic pains and persistent slight cough from which she had suffered every subsequent winter. In 1906, owing to the persistence of this cough and a gradually increasing loss of weight, she was medically examined and found to have signs of pulmonary tuberculosis in both apices. For this she was admitted to a sanatorium, where she remained six months, being discharged much improved but not cured. In February, 1907, during a busy season for her, she first noticed pain in the right foot. The pain grew gradually during the course of the day, was made worse by standing and walking, and was situated in the sole of the foot in the region of the astragalo-scaphoid articulation, and underneath the external malleolus. Rest in bed at night caused it to disappear, though an indefinite tenderness persisted. Gradually, however, during the year pain became more constant, rest had less effect on it, the left foot also became involved, and eventually in November she had to give up work. At that time, when examined by Professor Poncet, there was no apparent lesion, swelling and discolouration were absent, and the joints moved freely. There was, however, some wasting of the calf muscles. When seen again, however, four months later, on account of the severity of the pain, she had in the interval acquired marked valgus, most pronounced in the right foot. The soles of the boots were worn away on the inner side, and with the boots off there was seen to be a marked sinking of the plantar arch. The internal malleolus and the scaphoid projected abnormally, the heel was inclined inwards, and the fore part of the foot made with the hind part an angle open outwards. There was marked loss in the power of the peroneus longus, and a finger could be inserted between the ground and the head of the first metatarsal. The left foot was not so markedly involved, but in both feet the plantar arch was obliterated. When fitted with specially designed cork boots she was able in a few months to walk a little without much pain. Walking in slippers, however, was impossible. A course of waters at Aix-les-Bains in 1909 seemed to improve her condition, but in the spring of 1910 the pains had spread to other joints, so that she was unable to move or do any work. The shoulders, knees, and articulations of the fingers became involved in succession, and the clamminess characteristic of joint affections was present. The pains, however, were not constant, but moved from one articulation to another. In August, 1910, she returned to Aix for another "cure," and at the time of writing is so much better that she is able for a short time to discard the orthopædic boots for ordinary footwear. The case as described is one of ordinary rheumatism. There is apparently no suspicion of gonorrhœal taint, and there is no leucorrhœal or other vaginal discharge; and Professor Poncet does not hesitate to ascribe a tuberculous origin to the affections of the feet.

[1] Tarsalgie des Adultes d'Origine Tuburculeuse, Lyon, 1905.

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE Seventeenth International Congress of Medicine will meet in London in the summer of 1913, as perhaps our readers hardly need to be reminded. The exact date is to be fixed by the International Permanent Committee, which will assemble in London on April 21st and 22nd next, under the presidency of Dr. F. W. Pavy. At the same meeting the list of sections of the Congress will be constituted. Any wishes or propositions concerning the arrangement of this list may be sent, up to April 1st, to the honorary general secretary of the Permanent Committee, Professor H. Burger, Vondelstraat 1, Amsterdam, or to the Bureau of the committee, Hugo de Grootstraat 10, The Hague, Holland. The committee will be glad to receive, before the same date and at the same addresses, any information or propositions concerning the organisation of the Congress which interested parties may desire to forward. Our last references to the arrangements for the Congress will be found in THE LANCET of Oct. 22nd (p. 1234) and Nov. 5th, 1910 (p. 1368), and some particulars of the International Permanent Committee will be found in THE LANCET of April 16th, 1910, p. 1091.

Dr. W. P. Herringham, of 40, Wimpole-street, London, W., is the secretary of the 1913 Congress.

QUARANTINE FOR DIPHTHERIA CARRIERS.

THE energetic measures taken in Chicago to place antitoxin at the disposal of the entire population have already been described.[1] Though last year there was a recrudescence of this disease, it is encouraging to see that the death-rate has on the whole been enormously reduced. Nevertheless, this has not prevented a great increase in the number and the severity of the precautions taken. The statistics of the last five decades have just been published by the Chicago health authorities, and these show that from 1860 to 1869 the average annual death-rate from diphtheria amounted to 159 per 100,000 of the population. From 1870 to 1879 it was 112, from 1880 to 1889 it was 174, from 1890 to 1899 it was 93, and from 1900 to 1909 there were only 22 deaths per annum due to diphtheria per 100,000 of the population. Undoubtedly this wonderful result is in the main due to the use of antitoxin, and even more lives would have been saved if in all instances the proper measures had been taken as soon as the diagnosis of the disease had been established. With the use of antitoxin must also be associated measures of isolation and disinfection, and these later precautions have now to be applied not only to patients but also to disease carriers. This latter measure is especially difficult to enforce. But the Chicago Health Department has boldly seized the bull by the horns. The throats of apparently healthy school children have been examined. If a single case of diphtheria occurs in a school cultures are made from samples taken from all the throats of the children attending that school. When it is thus demonstrated that, though a child is apparently in good health, it is a carrier of diphtheria bacilli, the child is at once isolated and kept in quarantine till there are no more pathogenic bacteria in its throat. Outside the door of the room where the child is thus confined a card is suspended, bearing the following inscription:—

CARRIER OF DIPHTHERIA
HERE.
KEEP OUT.

Then in smaller type there is the following explanation:—

A diphtheria "carrier" may not be sick, but has diphtheria germs in the throat and can spread diphtheria. Such persons will be required to stay in the house until the throats are free from germs. Cultures will be taken to determine this. Other persons in the house can go in and out. Neighbours and friends must stay out. Milkmen must take the usual precautions. These rules must be obeyed until this warning card is taken down by the Department of Health.

Naturally not a few parents have rebelled against the severity of such enactments, and in some instances have been supported by local medical practitioners. The latter called in had looked at the child's throat in the usual way, and had failed to detect that there was anything suspicious. But these practitioners are now realising that such measures are only taken by the authorities after bacteriological analyses. This service entails a very great increase of work. At one moment the Chicago Municipal Laboratory received more than 1000 throat cultures to examine per day. In two schoolrooms, where there had been cases of diphtheria, no less than 25 per cent. of the children, though apparently in good health, were found to be carriers of the diphtheria bacilli. When such a crowd of children had to be put in quarantine it will easily be imagined that these novel and stringent measures caused no small commotion. This new service was first instituted last December, and for the week ending Dec. 16th, 1910, there were 239 new cases of diphtheria notified and 258 carriers. But for the next week there were not more than 150 carriers, though the new cases were nearly as numerous—namely, 224. A week later—that is, the last week of last year—the number of carriers had fallen to 53, and the cases of actual disease were reduced to 146. Only five carriers had been discovered the first week and seven the second week of the new year, so that this source of danger has been largely overcome, and the disease itself seems to be slowly dying out.

[1] THE LANCET, Dec. 27th, 1910, p. 1782.

GONORRHŒAL INFLAMMATION OF THE VAS DEFERENS SIMULATING APPENDICITIS.

IN the *Bulletin de la Société de l'Internat des Hôpitaux de Paris* for January M. René le Fur has reported seven cases in which gonorrhœal inflammation of the vas deferens simulated appendicitis. Statistics have been published to show that in about 40 per cent. of cases of gonorrhœal epididymitis the vas deferens, prostate, and vesiculæ seminales are involved. M. le Fur goes much farther than this, and states that, having systematically examined these parts per rectum in all cases of gonorrhœa, acute or chronic, he has always found them involved in cases of epididymitis. The cases of inflammation of the vas simulating appendicitis may be divided into two classes—those which are accompanied by epididymitis and those which are not. The former cases may clinically take several forms—acute, subacute, or chronic, just as may appendicitis. Cases of very acute epididymitis, with severe pain in the abdomen and right or left iliac fossa, vomiting, obstinate constipation, tympanites, and a temperature of 104° or 105° F., due to an intense peritoneal reaction and exactly simulating the symptoms of acute appendicitis, are well known. These symptoms are due to concomitant inflammation of the vas and vesicula seminalis which has involved the cellular tissue and even the peritoneum covering the pelvic part of the vas and the vesicula seminalis. The following is an example of inflammation of the vas simulating appendicitis. A man, aged 25 years, had slight epididymitis about the fifteenth day of a first attack of gonorrhœa. In the fourth week on returning from a railway journey he was seized with violent pains in the right side of the abdomen, tympanites, vomiting, and a temperature of 105° F. There was absolute constipation and flatus was not passed. He showed the pinched peritoneal face. He and his family were very uneasy, and thought he was suffering from appendicitis. M. le Fur reassured them, though he was himself uneasy, and prescribed opium and the application of ice to the abdomen, which relieved the pain. But on the following day the vomiting and the fever persisted, there was some delirium, the tongue was dry and furred, the pulse was rapid and weak, and the tympanites had increased. M. le Fur then diagnosed appendicitis and called in Professor Berger, who confirmed the diagnosis of appendicitis, but advised against operation, and recommended that the treatment be continued. For two days the condition of the patient was serious. There were a frequent and imperious desire to micturate, and a feeling of weight in the lower abdomen and fundament. On the fifth day the urethral discharge, which had disappeared completely, reappeared in an abundant form. Rectal examination showed that the right vesicula seminalis was much enlarged and painful; the vas deferens could be followed along the pelvic wall as an elongated painful swelling. On pressure on these organs and on the prostate pus exuded from the urethra. Further, there was in the pouch of Douglas a median swelling of the size of a Tangerine orange, which was painful and soft. The urethral injections were resumed, suppositories of thigénol were inserted, and the bladder was washed out with a 1 in 4000 solution of permanganate of potassium. Rapid improvement took place. The diagnosis

was altered from appendicitis to spermatocystitis and inflammation in and about the vas deferens with intense peritoneal reaction. Under massage of the vesicula seminalis and vas deferens, warm injections, and suppositories the swollen vas diminished, but complete absorption of the swelling as well as of the tumour in the pouch of Douglas occupied a long time.

THE SANITARY OFFICERS (OUTSIDE LONDON) ORDER, 1910.

A MEETING of medical officers of health, representing 30 sanitary districts in the Administrative County of Devon, was recently held for the purpose of discussing with the county medical officer the extra duties imposed on them by recent legislation in public health matters. Among the subjects discussed was the Sanitary Officers (Outside London) Order, 1910, upon which a resolution was passed requesting from the various authorities "an increase of salary as suggested by the Local Government Board, on account of the many extra duties thrown on medical officers of health" by recent Orders and enactments. In a leading article in THE LANCET of Jan. 21st, p. 175, we discussed this Order of the Local Government Board and the memorandum which accompanied it, and we drew attention to the expressed opinion of the Board that "it is not sufficient merely that a medical man is found who is prepared to accept the salary offered; it is more important that the salary should be such that it will be worth the while of a capable man to accept it and to give a sufficient amount of time to his duties." We also stated that the particular risk which the medical profession runs at the present moment is that insufficient salaries should be offered and accepted for the discharge of amalgamated duties. It is in part-time appointments especially that the imposition of extra duties is a sufficient justification for the request for an increase in salary, owing to the loss that is incurred from lessened opportunities for other work. We trust that the legitimate requests of those part-time officers of the sanitary districts in Devon for increase of salary will be met by the various authorities concerned with understanding and compliance.

THE PREVALENCE OF TRACHOMA IN FINLAND.

FINLAND has long been the home of trachoma, which under the name of catarrhal ophthalmia was stated in 1832 by Sanmark to be the cause of illness in more than half the patients in the hospital for infectious diseases in Vasa. Improved hygiene has now bettered matters considerably, but the result of an *enquête* by the Finnish Government in 1908 shows that the disease and its sequelæ, such as entropion and pannus, still are a national scourge. This material has been recently analysed by Grönholm and Kuhlefelt,[1] who estimate the present incidence of the disease at the high figure of 130,000, or 4·3 per cent. of the total population. In 1908 5273 patients were treated for this disease, and of the 83,052 Finnish imigrants in the years 1903–08 3511 were affected. In schools, factories, prisons, and other public institutions 1293 patients were discovered in a total of 26,000 persons examined. The disease was found less frequently in men than in women, 3·3 per cent. of the former and 5·2 per cent. of the latter being affected. The disease was most frequent in early adu't life, but it was common at all ages. Of the labouring communities, the peasants on the land suffered more frequently than mechanics and factory hands, while among the upper classes the disease was relatively rare. The population of Finland consists of a Swedish-speaking and a Finnish-speaking element; the disease was found to be almost exclusively confined to the latter element, probably owing to its insanitary habits. Several charts illustrate the prevalence of the disease in various districts, and the similarity, on the whole, in the geographical distribution of trachoma and tuberculosis. The astonishing observation is made that only 4·1 per cent. of the total number of patients sought medical aid in 1908. Many factors contribute to this apathy on the part of the patients. The disease may exist for years as granular conjunctivitis without troubling the patient to any great extent. The condition may even heal spontaneously without being recognised. Again, in the later stages of granular conjunctivitis scar formation, entropion, and trichiasis may attract but slight attention. Many patients also who realise that their blindness is incurable find little comfort in medical attendance. Unfortunately, even in the active stage of the disease, when there are lacrymation, œdema, defective vision, and pain, medical aid is not invariably sought, though more frequently in the towns than in the country. Thus in Helsingfors 25·1 per cent. of the patients consulted medical men in 1908, while in a country district the contemporary percentage was 1·9! This deplorable neglect of the disease naturally leads the writers to the vexed question of compulsory notification, and the treatment of patients at the cost of the State. Their proposals are based on the regulations in force in Hungary and Germany, where the disease has been materially reduced by compulsory notification, by medical inspection of school children and other groups of the community, and by the establishment of polyclinics and labour colonies for the patients. The appointment of medical officers specially trained for the work in the worst districts is also desirable. These regulations may be costly enough, but the annual loss to the nation from total and partial blindness warrants considerable expense in stamping out the disease. About 1000 (or one-third) of all cases of blindness in Finland are due to trachoma. Add to this figure the number of workers whose productive powers are more or less reduced by partial blindness, and the nation's pecuniary liability (if insurance against sickness existed on German lines) would, indeed, be heavy.

[1] Bidrag till Kännedomen om Trakomendemien i Finland samt Förslag till Atgärder för dess Bekämpande, Supplementhäfte till Finska Läkaresällskapets Handlinger, December, 1910.

PLAGUE IN GERMAN EAST AFRICA.

IN February last there was published in the *Archiv für Schiffs und Tropen-Hygiene* an account of a plague epidemic, mainly in rats, in the vicinity of Lindi. The date is not mentioned, but seems to have been in August and September, 1910. The infection was virulent—a native baby died after only two hours' illness, but only three cases of human plague occurred, and this is ascribed to the early recognition of disease in rats and to strenuous measures at once taken for their destruction. Of 520 rats caught in the first month 5 per cent. were infected; later in the epidemic the proportion increased to 14 per cent. The writer of the report, Dr. Manteufel, agrees with the opinion of the Bombay Plague Commission, that the epidemic must be very widespread among rats before it begins seriously to attack men. He found that mus decumanus was more attacked than mus rattus (8 per cent. : 1½ per per cent.). Few mice were caught, but they were heavily infected. In Hong-Kong it may be said that mus rattus is two or three times as often infected as mus decumanus. Dr. Manteufel considers that his experiences at Lindi prove the spread of plague by fleas because the guinea-pigs, exposed as flea-traps, contracted plague and died, and pulex cheopis (three males, one female) were found on one of those that died; they had all buboes in the neck, none in the mesenteric glands. Mesenteric buboes occur in animals infected by feeding on plague material, and no mesenteric buboes were found in rats that died during this epidemic. Rats that were healthy when caught carried few

fleas. Plague-infected rats had many fleas, two-thirds of those enumerated being carrier fleas, pulex cheopis. One rat covered with fleas had ulcers on the skin of the abdomen in which flea larvæ were found. If there were plague buboes in rats bipolar-staining bacilli were also found invariably in the spleen, but these might be found in the spleen though there were no buboes. He concludes that plague can be best prevented if the rats are carefully watched and their having become infected be discovered before the epidemic is widely generalised among them. Then they are to be assiduously diminished, and the danger will have passed away before the general public has come to a knowledge of its danger. On April 2nd, 1910, we noted an epidemic of plague which had occurred at Dar-es-Salam in German East Africa.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS AT ROME.

THE arrangements for this country for the forthcoming International Congress on Tuberculosis, which will meet in Rome from Sept. 24th to 30th, 1911, have been placed in the hands of the National Association for the Prevention of Consumption and other Forms of Tuberculosis, 20, Hanover-square, London, W., at the request of the Italian authorities. An executive committee has been formed for the purpose of arousing interest in the congress in this country, and for collecting information, papers, &c., and inducing local authorities to send delegates to the congress. The following form the committee: Sir Shirley Murphy, Professor William Osler, Professor G. Sims Woodhead, Dr. Arthur Newsholme, Dr. Theodore Williams, Dr. T. D. Acland, Dr. Hector Mackenzie, Dr. E. W. Hope, Dr. Nathan Raw, Dr. R. W. Philip, and Dr. J. J. Perkins, who will act as honorary secretary. A representative national committee has also been formed. Anyone who is interested in the congress should apply to the honorary secretary of the National Association for the Prevention of Consumption, 20, Hanover-square, W., for particulars, and any intending contributors should send in their papers to the same address.

A CONFERENCE was held on Tuesday afternoon last, March 14th, at the Local Government Board, over which Dr. A. Newsholme, principal medical officer to the Board, presided, the subject of consideration being what steps should be taken to arrest the present epidemic of measles in London. The majority of the metropolitan medical officers of health were present in addition to Dr. R. H. Crowley, representing the Board of Education, Dr. Theodore Thomson, assistant medical officer of the Local Government Board, Sir Shirley Murphy, and Dr. J. Kerr. Mr. Burns, at whose instigation the conference was held, took part in the proceedings.

THE King has sanctioned the promotion of the following gentlemen from Honorary Associates to Knights of Grace of the Order of the Hospital of St. John of Jerusalem in England: Dr. P. Frank, Dr. F. A. Brooks, and Mr. Edwin Lee.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.—The committee of management of the Sussex County Hospital at Brighton on March 8th received an official letter from the Home Office stating that His Majesty the King had been graciously pleased to command that the hospital shall henceforth be known as the Royal Sussex County Hospital. The institution was inaugurated in 1828, and has had each reigning monarch as its patron. The hospital has been extended from time to time, and its present extent can be gathered from the figures for 1909, when the in-patients numbered 2359 and the out-patients 10,046. The cost of maintenance is in round figures £15,000 per annum.

AN EGYPTIAN HOLY MAN.

BY C. G. SELIGMANN, M.D. LOND., M.R.C.P. LOND.

THE title of this note has been chosen because it deals—though doubtless incompletely—with the outward manifestations of the spiritual development of Mohammed Moussa, an Egyptian *fellah*, which led to this man being recognised as especially holy (*maburak*) by his companions. My opportunity of studying Mohammed Moussa occurred while a guest at Professor Petrie's camp at Qurneh in January, 1909, and I desire to take this opportunity of thanking him and his assistant, Mr. Ernest Mackay, for much kindness and assistance, while I am also greatly indebted to Mr. Briaff Hatton for the drawing of a *zikr* which illustrates this paper.

Mohammed Moussa is a native of Qift, and is one of the men who for some years have worked each winter for Professor Petrie. He is recognised by his fellow workmen as distinctly holy; in fact, those to whom I talked concerning him admitted that if he persevered in holiness he might after his death be honoured as a holy man. Mohammed Moussa is rigorous in the observance of the prayers and customs which are enjoined on all Muslim, but these virtues are so general in his fellows that they can have had little part in producing the belief in his exalted spiritual status, which at the time of my visit was in fact due to the ease with which he passed into a condition of ecstasy.

Mohammed Moussa, whose photograph, taken by Mr. Mackay, is reproduced in Fig. 1, is a middle-aged man of the usual stout build and moderate stature of the Egyptian *fellah*. He is a good and steady worker, and presents no tricks of manner or behaviour to differentiate him from his fellow workers. He had not been subject to any form of fit or seizure when a child, though even as a young boy he was very religious. His first ecstasy appears to have occurred during adolescence—certainly after puberty, and probably between 17 and 20 years of age.

FIG. 1.

Mohammed Moussa.

The occasion of my becoming aware of Moussa's attacks of ecstasy was a *zikr* held by his fellow workmen in thanks for the recovery from sickness of one of their number, Mohammed Osman. Osman had during his sickness vowed that on his recovery he would hold a *zikr* and kill a sheep; the sacrifice of the sheep he postponed until his return to Qift, but after the *zikr* sweetmeats and *karob* beans which he provided were distributed among all present. *Zikr* usually, but not invariably, takes place after sundown. They may be held on any day, but my Qift informants considered Fridays, Mondays, and Thursdays the most appropriate days. Though especially in the nature of a thanksgiving they are popularly regarded as meritorious, and their performance is, in fact, a religious act to all who take part in them. The

literal meaning of *zikr* is "remembrance" or "bringing to mind" (of God's glories), and Lane has recorded their occurrence among the Cairenes at a number of public and private ceremonies. They may be held in honour of a dead man, and there seems to be a popular and entirely unorthodox belief that his soul may thereby be helped in Paradise.

The *zikr* during which I first saw Mohammed Moussa pass into ecstasy began by a number of men standing in two parallel rows facing each other, one row being longer than the other, the latter consisting largely of small boys, and as they wearied of the dance this row ceased to exist. Between the two rows at the far end was one man Ali Hamid, assisted by Mahmud Ghalad, who is a *sayid*—i.e., a descendant of the Prophet. These men intoned certain songs said to be very old, which Mr. G. D. Hornblower (to whom I am indebted for much information relating to the *zikr* and kindred subjects) informs me were probably *medh*, i.e., praises of the Prophet, the men forming the rows dancing vigorously between the songs. Their rhythmic bowing and swaying motions were accompanied by a loud throaty inspiration or by the ejaculation of one of the names or attributes of Allah. The commonest ejaculations were *Allahu qaim*, "God is the established"; *Allahu qadir*, "God is omnipotent"; *Allahu daim*, "God is everlasting"; and *Allah haq*, "God is just." The words were by no means clearly articulated—indeed, the last expression was shortened till all that could be heard was a deep expiratory grunt. Each expression of praise was repeated continuously during the whole of one figure, regulating or being regulated by the rhythm of the movement it accompanied. The movements, which usually started with a moderate flexion of the neck and upper part of the body, became wider and more vigorous as each figure proceeded; sometimes a loud thudding noise was produced by raising the heels, the row bringing down the feet simultaneously. In one figure the feet were planted thus \/ and not moved, but the body rotated at the hips to the greatest possible extent each way so that the faces of the dancers turned through nearly 120°. In another figure the left foot was advanced with each flexion of the body and the weight of the body supported upon it. Perhaps each "figure" lasted five minutes, the intervals of rest being half as long.

After about one and a half hours the dance had dwindled to six men, of whom Mohammed Moussa was one. He had joined the dance late and had probably not been dancing more than 20 minutes before he passed into ecstasy. At the end of a figure he several times recited the confession of faith, *La ilaha ill'Allah Mohammedu rasul Allah*, in a harsh guttural voice. This was evidently considered as the beginning of ecstasy, for his right-hand neighbour, Nasr-ud-din, firmly linked his arm in his, but the first physical signs I noted were general rigidity of the body, accompanied with tremors from the legs upwards, the neck was strongly extended, the eyes shut, and at first the lips moved. Then Mohammed Moussa jumped up and down on the tips of his toes several times, after which with head thrown back he struggled violently, but was held by his neighbour while another man patted his breast and back as though to soothe him. His struggles became more violent, his head was thrown back, his teeth tightly clenched, each inspiration was deep and laboured, he frothed at the mouth and his saliva was blown about during expiration. At first supported upright by his companions he was soon lowered to the ground, where he was sustained in a sitting posture, his pulse at this time being 96. His lips moved, and I was informed that he was now having a vision; his head was slightly bent forward, so that he looked on the ground; his arms were rigidly extended at his sides and could only be flexed slowly. The onlookers carefully bent his left arm into a position of maximum flexion, so that the hand touched the shoulder; the rigidity of the right arm was similarly overcome and the arm and hand placed in the same position. All the men sat down and began chatting; Moussa sat still, occasionally swaying his body and muttering, while the people around him now and then patted his chest and back. This probably lasted about three minutes until Mahmud Ghalab whispered something in Moussa's ear. He started and appeared to come to himself instantly, looking round as if puzzled, while his neighbours laughed; then draping a cloth over his head he recited what I was told were his trance experiences, every now and then kissing a cloth in which he had wrapped his hand. After kissing it he passed the cloth and hand across his forehead, this being a form of thanksgiving. During his recital the crowd filled his pauses with a chorus of the confession of faith in a low impressive murmur. When this was over Moussa took his head in both hands and twisted it round as far as possible in each direction. He was left sitting down and appeared perfectly rational, for when one of the party said "Good night" he answered correctly in a perfectly normal manner. Sweetmeats and *karob* beans were then handed to all.

FIG. 2.

The beginning of a *zikr*.

In answer to my question I was told that Moussa had never bitten his tongue during ecstasy, in which state he visits Paradise (*Genna*), where he sees the saints and prophets and many green birds. His visions do not vary. On his return to the common state of existence he is neither giddy nor nauseated—indeed, as the whole matter is directly from Allah he could suffer no hurt. The flexion movements and the whispering in Moussa's ear are avowedly to restore consciousness.

On another occasion when a *zikr* was held Moussa thrice failed to keep time and twice laughed loudly and appeared to be on the point of ecstasy, but each time after a slight struggle, during which his neighbour Nasr-ud-din took hold of his arm, he again took up the rhythm of the dance. The fourth time that this occurred Moussa struggled violently with Nasr-ud-din, attempting to rush away into the darkness, and succeeding in dragging his friend a yard or two from the line before he became rigid and collapsed in his arms. Moussa was brought round in the manner already related, but on this occasion he did not relate his experiences while in ecstasy.

It is, I think, obvious that Moussa's ecstasy is an example of the condition known as hysteria major or hystero-epilepsy. I do not now propose to discuss the diagnosis and will only refer to the rigidity of the arms to say that I took part in bending one of Moussa's arms and was able to

convince myself that the rigidity of the muscles was only overcome slowly under influence of firm pressure continued for some little time. At the time of my visit Moussa had not during ecstasy or at any other time performed, or attempted to perform, any unusual acts such as are by repute commonly performed by Egyptian dervishes during ecstasy. Perhaps the commonest of these acts is to eat living snakes and to handle scorpions, and Moussa's comrades had no doubt as to his capacity should he wish to do either. This was because he was recognised to be under the protection of Sheikh Rifa'i, to whose devotees snake-bite is harmless, while scorpions, it is alleged, do not bite them.[1]

The next manifestation of Moussa's holiness is described by Mr. Mackay as follows, my own interpolations being placed between brackets. "On May 7th, 1909, I was informed by my head man that two strangers from the Fayum were giving in the village of Mitrahinch performances of various conjuring tricks, together with the handling and biting of red-hot bars. The two men were accordingly invited by myself to come in the evening and show what they could do, a large fire of wood and several irons for heating being provided outside the courtyard of the house. When the work for the day had finished, and after the workmen had had their evening meal [i.e., in the late twilight], the two men from the Fayum made their appearance provided each with a drum. Our men from Qift quickly formed a circle by sitting around the fire, and the two bars were placed in the centre of the fire to get hot. The proceedings opened by a *zikr* being performed by the two strangers sitting down, and in the intervals of this the elder of the two repeatedly told the onlookers to repeat the Fatiha. When about a quarter of an hour had elapsed with this, one of the men, the elder again, walked to the fire and took out one of the irons which was glowing hot [at the other end], walking around the ring and showing it to everybody. He then stood close to the fire and said a few prayers calling upon Sheikh Hussein [Egypt's principal saint, brother of Hassan and of Ali and grandson of the Prophet]. By the time these were finished the iron had become a dull red. It was then repeatedly and carefully licked by the man, who, I noticed, had his tongue well moistened and who drew it in after contact with the iron. The bar was finally held between the teeth of the man for a few seconds. A clumsy and long conjuring trick followed this. I then requested one of my men to ask the performer to lick the other iron in the fire with a dry tongue, and he at once advanced to the fire and took out the remaining bar, which, as it had been longer in the fire, must have been hotter than the first. He then was about to go through his previous performance, when with a loud cry Mohammed Moussa, who was one of the onlookers, rushed into the ring, and, snatching the iron from the man, held it [for more than ten seconds] at both ends and walked around the circle crying, 'Allah! Allah! Allah!'[2] He did this several times, and finally stood in the centre of the ring, close to the fire, holding the iron between his lips for at least ten seconds or more, swaying about as he did so. He then dropped [threw down] the iron and went into the usual *zikr* fit [i.e., a hystero-epileptic attack, *cf. supra*]. Directly the iron was dropped [thrown down] he went into a fit, and his attitude in putting [dropping] it down was as if he had grown tired of it. No word was spoken by any of the men while he was using it to my knowledge. He did not apparently try and cover any special distance, but just walked in the circle formed by our men. At this juncture I had the irons removed, fearing serious consequences to Mohammed Moussa if he should get hold of them again. After he had recovered from this fit, which lasted two or three minutes, in which he was not attended, he cried out again, 'Allah!' and rushed to the fire, and, seeing the irons were not there, demanded them. On being soothed by one of our men he stooped over the fire and threw some of the red hot embers over himself with his bare hands, burning his garments in one or two places. The irons were then again demanded, and one or two of his friends tried in vain to make him sit down; he dragged them around the ring together with a third man who got up to give assistance. Someone then suggested that a *zikr* be started to quiet the man, and this was done, a row of men being quickly formed and Mohammed Moussa placed in their midst. As soon as the performance was started he quieted down and joined in, shortly after retiring with a few of his friends to smoke a cigarette. I then went up and found him quite rational and self-possessed and examined his hands with the aid of a lantern, but could find no trace of burns or any injury. The next day a further examination was made by me, but no signs whatever of burns or even a redness could be seen either on his hands or lips. Also he worked all day as usual with the pick, and though I closely watched him he showed no signs of any tenderness in his palms. The men all tell me that this was the first time he had ever performed this feat to their knowledge, and they were accordingly all astonished. Mohammed Moussa informed me, when I asked him as to what made him get up as he did that he saw the man from the Fayum was a fraud, and something told him that he could perform the feat properly himself. He also seemed rather surprised at my wanting to look at his hands, and said that when he was under the protection of Sheikh Rifa'i no harm could possibly come to him. I may mention before closing that the juggler from the Fayum told me, to cover his discomfiture, that Sheikh Rifa'i was a much more powerful saint than his own—namely, Sheikh abu Salaam, and to this he ascribed the success of Mohammed Moussa." Concerning Mohammed Moussa's condition when he picked up the iron Mr. Mackay writes that he "was not to my mind unconscious when he took up the iron; he seemed in the condition you observed at Qurneh (just before a fit); I think it would be safe to say he was semi-conscious." Further, on examining Moussa's hands by lamplight Mr. Mackay found that he remembered what he had done.

The events which took place before May 7th, 1909, present the ordinary features of ecstasy, and accord with what we know of the physiology and pathology of the nervous system and are certainly not opposed to the accepted teachings of the biological sciences. The reverse applies to the manifestation of special power or holiness witnessed by Mr. Mackay on May 7th, 1909, and although I am not convinced that Mohammed Moussa was at the time able to handle red-hot iron without being burnt, I have reproduced Mr. Mackay's written account of Moussa's performance for two reasons. In the first place, whether or no Moussa in fact held a red-hot iron bar without incurring any lesion of the skin or mucous membrane visible at the time by lamplight or next day by daylight, there is no doubt that his companions believe that the power to do this was suddenly given him. Yusuf, the son of the sheikh of the Qift Ababdeh, of whose honesty I have had much experience, was present at the time and had not a shadow of doubt as to the reality of what he had seen; he had heard of plenty of other instances, and he absolutely failed to see any difficulty in accepting the facts at their face value, or to sympathise with me in my doubts.

Hence, Mr. Mackay's experience at its lowest value is worth recording as an example of one method by which a reputation for holiness may be acquired in the Near East. But I hope that by putting this matter upon record I may help to bring about a result of greater value than this—namely, that my example may encourage observers among native races to study and describe the facts of all instances of the state, or states, which are commonly grouped under the titles of "ecstasy," "possession," and "shamanism," for there is at least *primâ-facie* evidence suggesting that these three states in certain cases are due to "depersonalisation" or to "multiple personality," and are in many ways comparable with the examples studied and recorded by alienists and psychologists. Moreover, the accumulation and study of instances like the present, in which harmful substances are reported to fail to produce the lesions which in ordinary circumstances follow their action, seems to be the only way of testing the credibility of a number of unusual and "non-natural" events which are recorded as occurring among savage and civilised peoples at the present day.

[1] Mr. Hornblower tells me of an instance within his own knowledge in which a man was bitten by a snake while pulling down an old house. The man laughed, said he was a Rifa'i, and that the snake therefore could not hurt him; nevertheless, he died in a few hours.

[2] The bars were placed end on in the fire, and therefore one end got hot while the other was used as a handle. The iron was taken hold of at each end and held above the head like the small stick used by dancing girls in Egypt.

WEST CORNWALL INFIRMARY, PENZANCE.—Several young people in Penzance recently collected £100 for providing the West Cornwall Infirmary with the X ray apparatus, and last week it was presented to the institution.

ROYAL SOCIETY OF MEDICINE.

THE SOCIETY'S NEW HOUSE.

ON a site at the corner of Wimpole-street and Henrietta-street, Cavendish-square, a house is now being erected which will provide ample accommodation for the Royal Society of Medicine for many years to come, even if the society continues to increase, as it is confidently expected it will do. On this area of nearly 10,000 square feet a handsome building of classical design, by Mr. John Belcher, R.A., will have its main entrance in Henrietta-street and a second and commodious entrance from Wimpole-street.

FIG. 1.

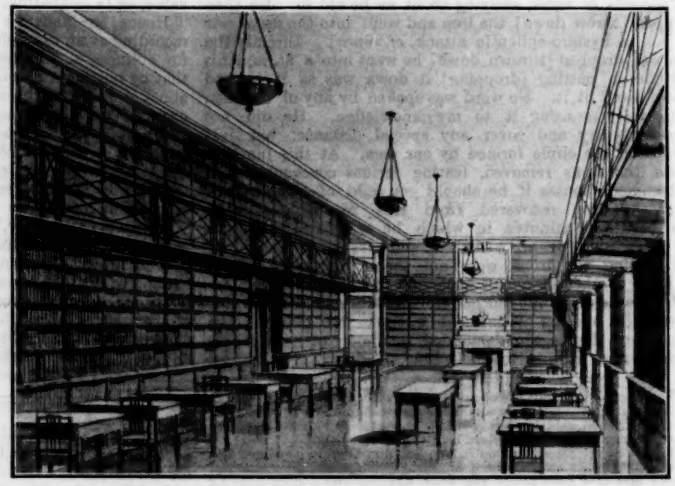
Hall and lounge.

The building, as recommended by the Council, and approved by the Fellows at a recent special general meeting, will consist of a large, well-lighted, and excellent basement, a ground floor, and three additional floors. On the ground floor will be a handsome and spacious vestibule, two meeting halls—one capable of holding about 500 persons, the other somewhat smaller holding about 150 persons—and patients' rooms (for both sexes), cloak rooms, cashier's and porters' rooms.

The whole of the first floor will be taken up by the library and by the offices of the secretary, editor, and clerks. The library will extend the whole length of the building, and will be 110 feet long, 28 feet wide, and 19 feet in height. The periodical room will be an annex extending back 21 feet from the library proper at its eastern end. The library will have a gallery; and a mezzanine room with additional tables for readers will open off the gallery, and extend back the whole depth of the building at the Wimpole-street end. The main part of the second floor will be occupied by the council room—over the centre of the library; and by two committee rooms—one over each end of the library—each of which will communicate with the council room. There will also be a tea and conversation room, and lavatories for Fellows. On the third floor there will be a museum; a room, properly fitted and equipped for examining specimens and for histological work; a smoking-room; and a tea and conversation room, and lavatories for lady Fellows. In the basement there will be dressing-rooms and lavatory, and storage for 250,000 volumes.

The financial position of the society is as follows: The debenture debt is much more than amply secured by the property in Hanover-square, and the rent received from the present leaseholders of that property not only covers the interest on the debenture debt, but provides over £1600 a year, without which the subscriptions of the Fellows and members would not be sufficient to enable the society to pay its working and ordinary expenses out of income. The site of the new house has been paid for by money realised by the sale of investments. It was decided by a resolution passed at a special general meeting of the Fellows in February, 1910, that an effort should be made to raise the whole amount of the cost of the building by means of voluntary gifts from the Fellows of the society, the members of the sections, and the friends of Fellows and members. Though

FIG. 2.

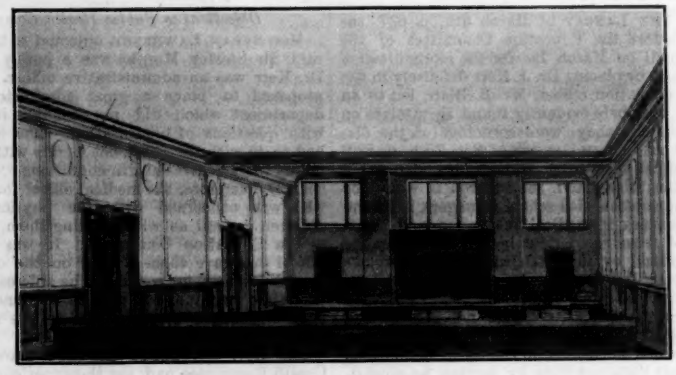


Library.

£12,224 have been promised or given (by 614 out of 2313 Fellows, 112 out of 976 members, and by other subscribers), yet up to the present time only £7558 have actually been received by the treasurers. The Council, however, hopes that with the assistance of all, or many, of the Fellows who have not yet contributed, the whole amount—£30,000—will be raised before the building is completed, as it is expected to be by December in this year.

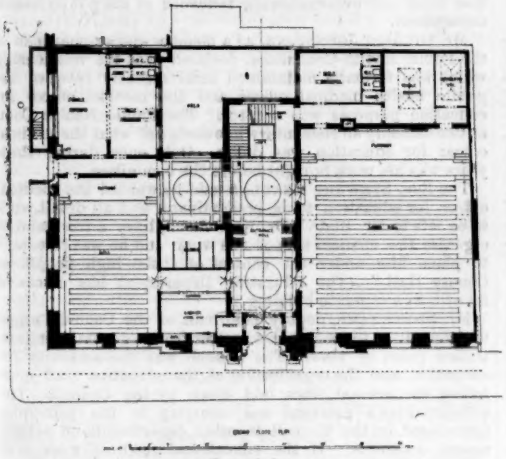
As the building is rapidly being proceeded with and the builder's certificates of charges and the architect's fees are now having to be met, as the several stages of the work are reached, it would be a great assistance if the amounts promised and the donations and subscriptions which Fellows are intending to give, were forwarded to the treasurers as soon as possible. It is desirable that Fellows in considering the amount of their contribution to the building fund should bear in mind that before the amalgamation many of them belonged to several of the societies now amalgamated, and paid annual subscriptions of £5 5s. or more, some even as much as £10 10s. The inclusive annual subscription since the amalgamation is now only £3 3s., and Fellows of the Royal Society of Medicine, besides receiving the costly and admirable volumes of "Proceedings," obtain much greater advantages than were formerly enjoyed by Fellows of the Royal Medical and Chirurgical Society, whether they were also members of one or more of the other societies or not.

FIG. 3.



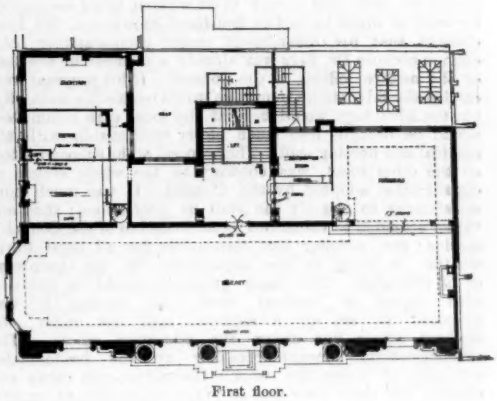
Large meeting room.

FIG. 4.



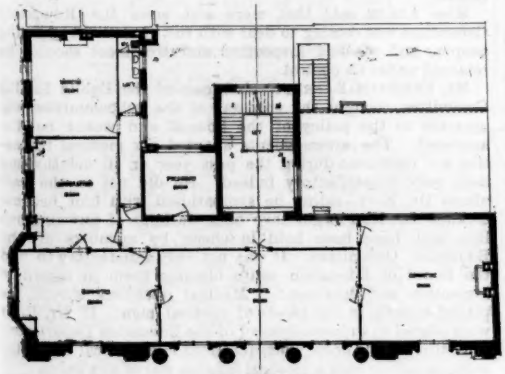
Ground floor.

FIG. 5.



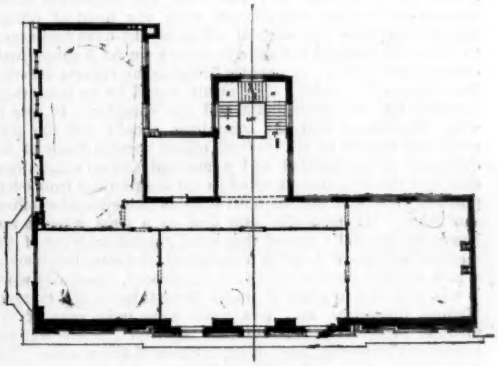
First floor.

FIG. 6.



Second floor.

FIG. 7.



Third floor.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Medical Inspection and Treatment of London School Children: Debate on the Reorganisation Proposals.

As indicated in THE LANCET of March 4th, p. 627, the proposals brought before the Education Committee of the London County Council on March 1st for the reorganisation of school medical work by placing Dr. J. Kerr definitely in the department of the education officer, Mr. R. Blair, led to an interesting debate. Members evidently found themselves on the horns of a dilemma; they were conscious of the disadvantages (pointed out in THE LANCET of Feb. 25th, p. 520) of placing the medical officer for education under a lay authority, and, on the other hand, they feared it would be difficult to secure coöperation with school managers, teachers, and local care committees if medical inspection and treatment were organised from the public health department of the Council. A proposal by the chairman of the Council's General Purposes Committee to make Dr. Kerr a chief officer of the Council received an equality of voting, the chairman not exercising his casting vote. We were not able to find space last week for this interesting debate.

Mr. R. A. BRAY opened the attack on the recommendations of the Children's Care Subcommittee by moving an amendment which would make Dr. Kerr directly responsible to the general medical officer, Sir Shirley Murphy, instead of to Mr. Blair. Mr. Bray said it was generally agreed that medical inspection and treatment must go together, and difficulty had arisen because the first named was under the control of the medical officer for education purposes and the second was under the direction of the education officer. He agreed that there must be close coöperation between Dr. Kerr and Mr. Blair, but close coöperation did not mean absorption. Surely Mr. Blair had enough to do without being responsible for work of which he had no first-hand knowledge. Mr. Bray claimed that his amendment meant comparatively little change because Dr. Kerr was already a member of the staff of the medical officer of the Council. If his proposal were carried the Education Committee would remain the authority, but the advantage would be that the local care committees would be brought into much closer relationship with the medical and nursing staffs. The proposal of the subcommittee, on the other hand, was contrary to the whole system of classification adopted by the Council. It was much more satisfactory to classify the staff by professions; thus one valuer attended to valuations for all branches of the Council's service; one solicitor was responsible for all legal work, whether it arose in the department of the tramways or of education. The same principle should be followed with regard to medical work, but instead it was proposed to set up a medical staff not under the medical officer but under the education officer. The recommendation meant breaking up the fundamental principle of committee work. Committee-men were not experts, but their duty was to judge the reports of experts and decide what action should be taken. That system was based on the principle that the committee got the reports of its experts pure. They wanted to know what the medical officer recommended, and not what the education officer recommended after consultation with the medical officer. The promise that the medical officer would have free access to the committee did not amount to very much. A subordinate officer could not be constantly bringing up reports differing from those of his chief. The result would be an intolerable position for the subordinate and his superior. It was of vital importance that the committee should get the pure undiluted reports of its medical officer because many of the questions to be decided had a medical and an educational side, and the committee needed to see the position from every point of view and not see both sides as the education officer saw them. Mr. Bray also said that at a time when it was becoming generally agreed that some greater unifying of the medical services of London was needed, the establishment of a new medical service was to be deprecated, especially when it was proposed to place it under the guidance of a layman. Medical inspection and treatment were only part of the medical supervision that children required. There was the immensely important part of supervision of the homes. This work was carried on for the most part by the medical officers to the borough councils, but the London County Council medical officer had very large powers with regard to the local health authorities. Insanitary houses were dealt with under by-laws made by the County Council, and the same remark applied to infectious diseases. Under the subcommittee's scheme this work was to be carried on through two separate departments.

Objections to Public Health Committee Control.

Miss SUSAN LAWRENCE objected to the amendment. She said Sir Shirley Murphy was a purely advisory official and Dr. Kerr was an administrative officer, yet the amendment proposed to place a great administrative work under a department which did not concern itself to any degree with questions of organisation. The Education Committee had to do with the child, not merely with regard to its school but as to its general health conditions. (Mr. BRAY: "Hear, hear.") Therefore, the medical officer for education purposes, who was concerned with the physical condition of the children as well as with treating them, should be an officer of the Education Committee. It was the machine of the school that gave them a hold on the child, and the Public Health Department would not be able easily to keep in touch with that machine. It was an extremely difficult question, but she thought the proposals of the subcommittee would make for greater efficiency.

The Rev. Dr. SCOTT LIDGETT feared that the Public Health Committee had not the experience that would enable it to preside over the genesis of a totally new way of dealing with the children in the schools. If the work was put under the public health medical officer they would alienate all those helpful influences in developing "the new science and practice of the care of the child" which the medical officer for education purposes was beginning to build up. At the present largely experimental stage this work should be kept free from the overshadowing influence of the public health department.

Mr. GILBERT JOHNSTONE, as a member and ex-chairman of the Public Health Committee, declared that the relationship which was formally maintained until recently between the public health medical officer and the medical officer for education purposes was a farce. The Public Health Committee had only an elementary knowledge of what the medical officer for education was doing. Only once during three years was his work brought before the committee.

The Rev. STEWART HEADLAM said he wanted the medical officer for education to be predominant, and all detail work to be left to Mr. Blair. Dr. Kerr should have a free hand to organise the medical side of the work, and he was reluctant to place him under the control of "the high people at County Hall." (The Education Department has offices of its own in a separate building.)

Mr. SHEPHEARD, deputy chairman of the Council, urged the committee to look at this matter from a general administrative point of view. The Council was the authority for education, and the organisation of the education staff must follow the general lines laid down by the Council. The subcommittee's proposal was contrary to the principles formulated by the Council in other departments on several recent occasions. If the educational medical work was placed under the Public Health Department he believed the head of that department would leave Dr. Kerr a pretty free hand.

Miss ADLER said that more and more the Education Committee was coming to deal with the whole lives of young people, and medical inspection and treatment should be retained under its control.

Mr. FREEMAN BARRETT, chairman of the Public Health Committee, thought the proposal of the subcommittee was contrary to the policy of the Council and would be disapproved. The arrangements adopted for medical inspection and treatment during the past year or 18 months had been very unsatisfactory indeed. He did not in the least blame Dr. Kerr—rather he sympathised with him because he knew Dr. Kerr might have been desirous of pursuing one line and have been held in check by members of the Education Committee. It was not very satisfactory to find the Board of Education again blaming them in regard to inspection and treatment. Medical questions should be placed entirely in the hands of medical men. If Mr. Blair were placed in supreme control of the Education Department difficulties would occur when questions of a medical character arose on which only a medical opinion was of any value.

Mr. HOBSON thought it would be a fatal error to place the treatment of many thousands of children under a lay officer, in conjunction with whose administration all sorts of difficulties would arise in relation to medical etiquette.

On a division Mr. Bray's amendment to make Dr. Kerr responsible to Sir Shirley Murphy was lost by 19 votes to 10.

Education Medical Officer a Chief Officer.

Mr. ERNEST GRAY, chairman of the General Purposes Committee of the Council, which has to revise all administrative proposals by other committees, then moved the following amendment :—

That the medical inspection and treatment of school children be placed under the control of the medical officer for education purposes, and that he be directly responsible to the Education Committee and be a chief officer of the Council.

This amendment was put to the vote forthwith and there were 14 votes for and 14 against. The chairman declined to exercise his casting vote and the amendment fell to the ground.

The reference back of the whole question was then suggested, but Mr. F. R. ANDERTON, chairman of the subcommittee, said it was important that the report should go forward, because until a conclusion was arrived at the consideration of schemes for supplying the deficiencies in the medical treatment scheme pointed out by the Board of Education would have to be suspended. The committee had to meet the objections of the Board of Education within a reasonable time.

Mr. GRAY said everyone was struggling with an illogical position. Medical treatment must be swallowed up in the public health department if one scheme were carried, or a layman must be placed in authority over Dr. Kerr if the other scheme were put into operation. The committee might overcome the difficulty by taking a step which he believed it would be driven to take ultimately if they did not take it now. School medical work would grow and it would demand the services of a chief officer of the Council. In his opinion it could, and should, be dissociated from the ordinary public health work. That was why he moved his amendment: to test the feeling of the committee. It received more support than he thought possible, and that method of dealing with the difficulty should have further consideration in subcommittee.

Mr. JOHNSTONE objected that Mr. Gray's proposal was sprung on the committee without discussion.

Mr. BRAY and the Chairman of the Committee both urged the desirability of coming to an immediate decision. The Chairman remarked that the whole question of reorganisation of medical treatment was being held up, and he regarded this as a matter of extreme urgency.

Only seven members voted for the reference back and the subcommittee's recommendation to place the medical officer for education purposes under the control of the education officer was then carried by 19 votes to 11.

Notification of Chicken-pox.

On Tuesday, March 14th, on the recommendation of the Public Health Committee, the London County Council decided to make chicken-pox a notifiable disease under the Public Health (London) Act, 1891, for three calendar months from March 22nd, 1911. The committee stated that slight cases of small-pox were sometimes mistaken for chicken-pox and so were not isolated as early as they would have been had the real nature of the disease been recognised.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE Lord Mayor presided on March 10th over a meeting of the Council of the Metropolitan Hospital Sunday Fund, which was convened for the purpose of considering a recommendation of the Finance Committee with reference to the appointment of new trustees, and also of discussing the question of the contributions of Sunday cinematograph shows to the funds of hospitals which participated in the awards of the Metropolitan Hospital Sunday Fund.

With regard to the question of trustees, Mr. John Hale explained that the Lord Mayor, the Governor of the Bank of England, and the City Chamberlain for the time being were the trustees of the Fund, but although that arrangement had worked well the continual transference of securities was a source of expense which could be obviated by the appointment of permanent trustees. It was subsequently agreed that Mr. J. Hale, Mr. J. H. Buxton, Sir John Bell, and Sir Ernest Tritton should be appointed trustees, and that powers should be sought for this alteration.

Sunday Cinematograph Entertainments.

Archdeacon SINCLAIR then moved the adoption of the recommendation of the General Purposes Committee, which had recently debated this subject. The recommendation read as follows :—

That the Council has fully considered the recommendations of the General Purposes Committee on the subject of Sunday cinematograph entertainments run by hospitals, as well as the proposal of certain places of worship to earmark their collections for hospitals which do not participate in the proceeds of such shows, and while not expressing any opinion upon the expediency or otherwise of Sunday entertainments as such, disapproves of hospitals receiving grants from this Fund (which consists mainly of church collections) being concerned in any movement which is contrary to the spirit of its supporters. The Council further resolves that in the event of the collections for the Fund suffering any diminution which may be fairly attributable to the continuance of these entertainments, as aforesaid, it shall be a recommendation to the Committee of Distribution to take the same into consideration when making their awards for the year. It is ordered that a copy of this resolution be forwarded to the committee of management of each of the hospitals concerned.

Archdeacon Sinclair said that three or four of the leading churches in the metropolitan area—both Church of England and Nonconformist—were so displeased at the method by which four hospitals were receiving part of their funds that they asked the Council to earmark their contributions for hospitals which did not employ that method. The London Hospital, the Evelina Hospital for Sick Children, and two others had held entertainments at electric theatres on Sunday afternoons. The London Hospital made about £1300 a year in this way. Two sets of people objected to the holding of these entertainments on Sunday—those who regarded the proceeding as a serious evasion of the law and those who regarded it as an infringement of the day of rest by which the customs of this country had hitherto been regulated. The churches which made the objections were not in the least degree jealous, because those churches were always full. The committee felt bound to safeguard the interests of the Fund and to do all in their power to protect the scruples of those congregations and preserve the integrity and harmony of the Hospital Fund, so long and so happily maintained. They did not express any condemnation of the electric theatres. That was a matter for the public and the London County Council, but as this particular method of raising money had caused a scandal amongst certain of their constituents, they wished to show that they dissociated themselves from it.

Lord CHEYLESMORE seconded the adoption of the recommendation. He thought that to recognise Sunday cinematograph entertainments would be most detrimental to the interests of the Fund, though he had nothing to say against them as entertainments. It should be remembered that the bulk of the money collected by the Fund came from the clergy and the people who attended places of worship. The Fund should hold to the clergy and their congregations.

The Hon. SYDNEY HOLLAND complained that although he had been invited by the General Purposes Committee to discuss the matter with them at a certain hour on a particular day, when he arrived, even before the time appointed, the matter had been decided and the recommendation printed. He moved as an amendment that the Council take no action in the matter. The London Hospital received between £1200 and £1400 a year from Sunday cinematograph entertainments. He thought the public would dissent from the narrow-minded policy recommended by the committee. If that recommendation was adopted it would mean that the money collected by the Hospital Sunday Fund would not go to the hospitals that were best managed, but to those institutions whose managers were most pliable to dictation. The principle of the Fund hitherto had been that it would not interfere with the way in which a hospital got its money, but would interfere with the way in which it was spent. The poor people who attended cinematograph entertainments were people who would not contribute to the Fund. If the proposed policy was pursued the next step would be for clergymen who were teetotalers to allocate their subscriptions to hospitals where no drink was given. There would be no end to the number of views that would be pressed upon the Council of the Fund. The proposal they were considering would not be popular with the people nor with all the clergy.

The Rev. H. R. GAMBLE, seconding Mr. Holland's amendment, thought that by accepting the committee's report the Council would be entering upon an extremely dangerous course the consequences of which they could not see. It was inexpedient that the sources of the money received should be investigated, and if some churches allocated their collections to one hospital and some to another it would lead to an exceedingly dangerous warfare. It was in the ultimate interests of the Fund that he asked the Council to hesitate before coming to a conclusion in the matter.

Sir A. PEARCE GOULD, who supported the resolution, said that Mr. Holland was departing from the voluntary system. He was earning money for the hospitals. If the principle that hospitals could be supported by other than voluntary contributions were once admitted the support of hospitals by the rates would follow. Why did Mr. Holland stop at Sunday shows? why did he not run public-houses? (Mr. HOLLAND: I do.) If that were done the public would say that hospitals could be supported as business institutions, and would cease to contribute to them. It was impossible to close one's eyes to the fact that the hospitals had been supported by those who were interested in religion and in the religious movements of the country.

The Rev. C. H GRUNDY, speaking in behalf of Mr. Holland's amendment, hoped that the Council would have nothing whatever to do with a question that did not concern them.

The amendment, "That this Council resolves to take no action in the matter," on being put by the CHAIRMAN, was lost by 10 votes to 19.

The Rev. C. H. GRUNDY then moved the previous question, which was also lost.

Deputy M. WALLACE moved that the matter be referred back in order that Mr. Holland might have an opportunity of discussing the matter with the committee.

Sir A. PEARCE GOULD pointed out that Mr. Holland had already fully discussed the matter, and Mr. HOLLAND then appealed to the Lord Mayor, who was present at the committee meeting, as to the truth of his (Mr. Holland's) statement with regard to the consideration of the recommendation before Mr. Holland's arrival. The LORD MAYOR admitted that Mr. Holland was technically correct, but said that the meeting in question had been reopened to allow Mr. Holland to discuss the matter.

Mr. HOLLAND opposed the sending back of the report to the committee as they had already made up their minds on the matter.

It was, however, after some discussion decided to refer the report back.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8180 births and 4911 deaths were registered during the week ending March 11th. The annual rate of mortality in these towns, which had been equal to 17·6, 17·2, 16·2, and 15·3 per 1000 in the four preceding weeks, further declined to 14·9 in the week under notice. During the first ten weeks of the current quarter the death-rate in these 77 towns averaged 16·0 per 1000, and the mean recorded rate in London during the same period was 15·9. The annual death-rates during last week ranged from 7·6 in Wallasey, 7·7 in Handsworth and King's Norton, and 8·1 in West Hartlepool, to 22·4 in Devonport, 22·6 in Sheffield, 27·5 in Dewsbury, and 28·3 in Middlesbrough. The 4911 deaths from all causes in the 77 towns showed a further decline of 129 from the numbers returned in the four preceding weeks, and included 702 which were referred to the principal epidemic diseases, against numbers increasing from 477 to 663 in the five preceding weeks; of these 702 deaths, 474 resulted from measles, 80 from whooping-cough, 56 from diphtheria, 49 from diarrhœa, 24 from scarlet fever, 13 from enteric fever, and 6 from small-pox. The fatal cases of measles, which had steadily increased from 160 to 397 in the first nine weeks of the current quarter, further rose last week to 474; they caused the highest annual death-rates of 3·4 in Rochdale, 3·9 in Wigan, 4·6 in Leyton, 9·1 in Devonport, and 10·3 in Sheffield. The deaths from whooping-cough, which had been 91 and 108 in the two preceding weeks, declined to 80 last week; the highest death-rates from this disease last week were 1·1 in Leyton and in Wigan, 1·9 in Middlesbrough, and 2·0 in Dewsbury. The 56 fatal cases of diphtheria showed a decline of 8 from the number in the previous week, and included 15 which were recorded in London and its suburban districts, 4 in Birmingham, 3 in Bolton, 3 in Barrow-in-Furness, 5 in Leeds, and 3 in Gateshead. The deaths of infants under 2 years of age attributed to diarrhœa, which had been 53 in each of the two preceding weeks, declined to 49 last week, and were fewer than in any previous week of this year. The 24 fatal cases of scarlet fever showed a further slight decline from the number in the two previous weeks; 4 occurred in London and its suburban districts, 4 in Liverpool, and 2 both in Wolverhampton and in Sheffield. The 13 deaths referred to enteric fever also showed a decline; 2 were registered both in Manchester and in Nottingham. Six deaths from small-pox were recorded in London, 3 being of young children and 3 of adults; 10 deaths from this disease have occurred in the Metropolitan Asylums Hospitals during the past two weeks. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had been 1276, 1242, and 1197 in the three preceding weeks, had further declined to 1166 on Saturday last; 120 new cases of this disease were admitted to these hospitals during last week, against 166, 138, and 129 in the three preceding weeks. These metropolitan hospitals also contained on Saturday last 944 cases of diphtheria, 748 of measles, 253 of whooping-cough, 47 of small-pox, and 23 of enteric fever. The 1391 deaths from all causes in London last week, showing a further slight decline from recent weekly numbers, included 328 which were referred to diseases of the respiratory system, against 421, 395, and 318 in the three preceding weeks. In the 77 towns 142 deaths from different forms of violence were registered during last week, showing a further decline from the numbers in recent weeks; and 342 inquest cases were recorded. The causes of 38, or 0·8 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Leicester, and in 50 other smaller towns; the 38 uncertified causes of death in the 77 towns last week included 9 in Birmingham, 4 in Liverpool, 4 in Sheffield, 3 in Portsmouth, and 2 in St. Helens.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 894 births and 583 deaths were registered during the week ending March 11th. The annual rate of mortality in these towns, which had been equal to 19 8, 19·0, 17·4, and 16·9 per 1000 in the four preceding weeks, further declined to 15·9 in the week under notice. During the first ten weeks of the current quarter the death-rate in these towns averaged 16·9 per 1000, and exceeded by 0·9 the mean rate during the same period in the 77 English towns. The annual death-rates last week in the eight Scotch towns ranged from 11·0 and 11·3 in Paisley and Aberdeen to 24·9 in Perth and 25·3 in Greenock. The 583 deaths from all causes in the eight towns last week showed a further decline of 38 from the numbers returned in recent weeks, and included 60 which were referred to the principal epidemic diseases, against 76 and 57 in the two previous weeks; these 60 deaths were equal to an annual rate of 1·6 per 1000, being 0·5 below the rate from the same diseases in the 77 English towns; the highest rates from these diseases last week in the Scotch towns were 2·7 in Dundee and 3·0 in Leith. Of these 60 deaths from the principal epidemic diseases, 36 resulted from whooping-cough, 7 from diarrhœa, 5 from measles, 5 from diphtheria, 4 from scarlet fever, and 3 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had been 45, 39, and 32 in the three preceding weeks, rose again to 36 last week, and included 19 in Glasgow, 8 in Dundee, 4 in Leith, and 2 in in Edinburgh and in Paisley. The 7 deaths attributed to diarrhœa were fewer by 5 than the number in the previous week, and were all of infants under 2 years of age. The 5 fatal cases of diphtheria corresponded with the number in the previous week, including 2 in Edinburgh. The 5 deaths from measles, of which 3 occurred in Glasgow and 2 in Edinburgh, exceeded those

in the previous week by 3. The 4 fatal cases of scarlet fever, of which 2 occurred in Edinburgh, corresponded with the number in the previous week. The 3 deaths referred to enteric fever included 2 in Glasgow and 1 in Leith. The deaths referred to diseases of the respiratory system in the eight towns, which had been 181, 139, and 118 in the three preceding weeks, further declined last week to 108. The 20 deaths referred to different forms of violence exceeded the number in the previous week by 5; and 177 of the 583 deaths from all causes in the eight towns, or 30 per cent., occurred in public institutions. The causes of 15, or 2·6 per cent., of the deaths registered during the week were not certified or not stated; in the 77 English towns last week the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,163,596 persons, 627 births and 431 deaths were registered during the week ending March 11th. The annual rate of mortality in these towns, which had declined in the four preceding weeks from 24·1 to 20·4 per 1000, further fell to 19·3 in the week under notice. During the first ten weeks of the current quarter the annual death-rate in these 22 towns averaged 20·7 per 1000; the rate during the same period did not exceed 16·0 in the 77 English towns, and 16·9 in the eight Scotch towns. The annual death-rate during last week was equal to 21·0 in Dublin, 15·4 in Belfast, 27·4 in Cork, 15·4 in Londonderry, 24·6 in Limerick, and 17·5 in Waterford; in the 16 smallest of the Irish towns the mean annual death-rate last week was equal to 20·8 per 1000. The 431 deaths from all causes in the 22 towns last week showed a further decline of 24 from recent weekly numbers, and included 26 which were referred to the principal epidemic diseases, against 41 and 25 in the two preceding weeks; these 26 deaths were equal to an annual rate of 1·2 per 1000, which was 0·9 below the mean rate from the same diseases in the 77 English towns. Of these 26 deaths in the Irish towns from the principal epidemic diseases, 10 resulted from whooping-cough, 8 from measles, 3 from enteric fever, 3 from diarrhœa, and 2 from diphtheria, but not one from scarlet fever or small-pox. The 10 fatal cases of whooping-cough showed a decline of 12 from the number in the previous week, including 3 in Dublin and 2 in Newtownards. The 7 fatal cases of measles, the 3 of enteric fever, and the 2 of diphtheria were all recorded in Dublin. Of the 3 deaths attributed to diarrhœa, 2 were of infants and 1 of an adult. The deaths in the 22 towns referred to diseases of the respiratory system, which had declined in the four preceding weeks from 141 to 108, further fell last week to 100. Of the 441 deaths from all causes last week, 133, or 31 per cent., were recorded in public institutions. The causes of 19, or 4·4 per cent., of the deaths in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death last week did not exceed 0·8 per cent. in the 77 English towns, and 2·6 per cent. in the eight principal Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: T. W. Philip to the *President*, additional, for Greenwich Hospital School and Royal Naval College, temporary; J. H. Stenhouse to the *Africa*; A. G. Andrews to the *Egmont*, additional, for Malta Dockyard; E. B. Townsend to the *Superb*; J. Menary to the Chatham Division, R.M.L.I.; H. B. Beatty, G. A. Waters, R. Hill, M.V.O., A. Gaskell, B. F. Parish, and L. Kilroy to the *President*, additional, for three months' hospital course; F. D. Lumley to the *Defence*; H. C. Arathoon to the *Formidable*, J. K. Robinson to the *Cæsar*, and J. A. Keogh to the *Cochrane*, all on recommissioning. Staff-Surgeons: W. E. Mathew, G. Ross, and A. X. Lavertine to the *President*, additional, for three months' hospital course; L. E. Dartnell to the *Mercury*, additional; J. H. Lightfoot to the *Vivid*, additional, for disposal; R. S. Osborne to the *Berwick*; H. Huskinson to the *Bulwark*; A. T. Gailleton to the *Halcyon*, on recommissioning; G. E. Macleod to the *Dreadnought*, temporary, on recommissioning; and J. A. Forrest to the *Andromache*. Surgeons: A. L. Robinson to the *Africa*; P. M. Rivaz to the *President*, additional, for three months' hospital course; G. A. Bradshaw to the *Formidable*, F. M. V. Smith to the *Cochrane*, both on recommissioning; and H. Cooper to the *Pomone*, additional, lent, for Dartmouth College, temporary.

ARMY MEDICAL SERVICE.

Colonel Arthur E. J. Croly is placed on retired pay (dated March 9th, 1911). Lieutenant-Colonel Edmund J. E. Risk, from the Royal Army Medical Corps, to be Colonel, *vice* A. E. J. Croly (dated March 9th, 1911).

Surgeon-General Sir Thomas J. Gallwey, K.C.M.G., C.B., retires on retired pay (dated March 15th, 1911).

Colonel George W. Robinson to be Surgeon-General, vice Sir T. J. Gallwey (dated March 15th, 1911).

Lieutenant-Colonel William G. Birrell, from the Royal Army Medical Corps, to be Colonel, vice G. W. Robinson (dated March 15th, 1911).

ROYAL ARMY MEDICAL CORPS.

Lieutenant Reginald C. Galgey resigns his commission (dated March 11th, 1911).

Colonel W. G. Macpherson, C.M.G., from Malta, has taken over duty as Principal Medical Officer of the Fourth (Quetta) Division, India. Colonel E. Butt, Principal Medical Officer of the Presidency and Assam Brigades, has been transferred from Darjeeling to Calcutta. Lieutenant-Colonel S. Westcott, C.M.G., commanding the Station Hospital at Mhow, has been selected to command the Station Hospital at Chakrata. Lieutenant-Colonel N. Manders, Senior Medical Officer in Ceylon, has been selected for the higher rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel R. H. Hall, from Colchester, has taken over duty as Senior Medical Officer at Bermuda. Lieutenant-Colonel S. R. Wills, commanding the Station Hospital at Agra, has been granted eight months' leave of absence from India. Lieutenant-Colonel H. H. Brown has been transferred from Murree to Rawal Pindi. Major H. I. Pocock, commanding the Military Hospital at Nowshera, has been granted six months' leave of absence in India. Major E. G. Browne has taken over charge of the Station Hospital at Delhi. Major D. D. Shanahan has been appointed Staff Officer for Medical Mobilisation Stores, Ninth (Secunderabad) Division, in succession to Major H. A. Hinge, tour-expired. Major A. Pearse, at present serving at Chatham, has been noted for appointment as Senior Medical Officer, West Africa. Major G. J. Buchanan, from Chaubutha, has taken up duty at Agra. Major E. M. Morphew, commanding the Station Hospital at Roorke, has been granted eight months' leave of absence home from India. Major H. S. Thurston, from the London District, has joined for duty at Malta. Major G. A. Moore has been transferred from Woolwich to Chatham. Major E. B. Steel, commanding the Military Hospital at Neemuch, has been granted leave of absence to Sept. 30th next. Major E. W. Slayter, from Wellington, has been appointed to command the Station Hospital at Bellary. Major A. E. Milner, from Tidworth Park, has joined for duty at Birmingham. Major G. M. Goldsmith, staff surgeon, Burma Division, has been granted eight months' leave of absence home from India with effect from March 15th. Captain J. H. R. Winder has been transferred from Shorncliffe for duty in the Aldershot Command. Captain J. A. Bennett, from Mhow, has been granted six months' leave of absence home. Captain J. Fairbairn, from Glasgow, has taken up duty at Sierra Leone. Captain J. G. Gill, commanding the Station Hospital at Cherat, has been granted six months' leave of absence home from India. Captain B. Johnson, from Wellington, has been appointed to command the Section Hospital, St. Thomas's Mount, Madras. Captain W. F. M. Loughnan has been transferred from Amritsar to Bareilly. Captain R. E. U. Newman, from Kuldanna, has joined at Rawal Pindi. Captain J. T. McEntire, from the Irish Command, has been posted to Newcastle. Lieutenant D. H. C. MacArthur, from Rawal Pindi, has taken up duty at Ambala Cantonment. Lieutenant A. T. J. McCreery has been transferred from Birmingham to Bulford. Lieutenant F. H. Somers-Gardner, from Pontypridd, has joined at Cosham.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel S. H. Henderson, superintendent of the Central Prison at Agra, has been appointed by His Honour the Lieutenant Governor of the United Provinces to officiate as Inspector-General of Prisons in the United Provinces during the absence on leave of the Honourable Lieutenant-Colonel C. Mactaggart. Lieutenant-Colonel W. Vost, on return from leave, has been appointed Civil Surgeon at Saharanpur. Lieutenant-Colonel W. D. Sutherland, civil surgeon at Sangor, Central Provinces, has been granted three months' privilege leave. On return from combined leave Lieutenant-Colonel H. E. Banatvala has been placed on special duty at Nagpur, under the orders of the Inspector-General of Civil Hospitals in the Central Provinces. Major B. H. Deare, civil surgeon of Hazaribagh, on return from leave, has been appointed Civil Surgeon at Darjeeling. Major R. H. Price has been appointed Specialist in Midwifery and Diseases of Women and Children to the Fourth (Quetta) Division. Major J. L. Macrae has been confirmed in the appointment of Civil Surgeon of Coorg. The services of Major W. D. Hayward have been placed permanently at the disposal of the Army Department as Medical Storekeeper to the Government of India at Calcutta. Captain L. Reynolds has arrived home on leave of absence from India. Captain A. W. Overbeck-Wright, Supernumerary Superintendent of the Central Prison at Agra, has been appointed to officiate as Superintendent in succession to Lieutenant-Colonel S. H. Henderson. Captain O. St. J. Moses has taken over duty as Police Surgeon at Calcutta during the absence of Major W. D. Hayward. Captain H. Buckley has been appointed to the medical charge of Manipur State. Captain C. Dykes, civil surgeon of Saharanpur, has been placed in charge of plague operations in the Ghazipur, Azmgarh, and Ballia Districts. Captain W. H. Leonard, attached as medical officer to the 55th Sikhs, has been granted eight months' leave of absence from India. Captain H. C. Brown has been appointed Specialist in the Prevention of Disease to the Jullundur Brigade. Captain H. A. Williams, D.S.O., resident medical officer of the general hospital at Rangoon, has been granted two years' furlough and study leave. Lieutenant R. B. Lloyd, officiating medical officer of the 58th Rifles, has been transferred to the 31st Lancers and attached for duty.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st South Western Mounted Brigade Field Ambulance, Royal Army Medical Corps: Captain Samuel Maclean, from the list of officers attached to units other than medical units, to be Captain (dated Dec. 28th, 1910).

2nd South Midland Field Ambulance, Royal Army Medical Corps: Captain Seymour Gilbert Barling, from the 1st South Midland Field Ambulance, Royal Army Medical Corps, to be Major (dated March 11th, 1911). Captain George William Craig, from the 1st South Midland Field Ambulance, Royal Army Medical Corps, to be Captain (dated March 11th, 1911).

DEATHS IN THE SERVICES.

Captain William Harold Gillatt, R.A.M.C., at Cairo on March 8th. He entered the service as lieutenant in 1906.

Brigade-Surgeon Thomas Turville Gardner, retired pay, late Army Medical Department, on Feb. 18th, at Engalee, East Grinstead. He entered the service in 1858 as assistant surgeon, was promoted to surgeon-major in 1873, and retired with the honorary rank of brigade-surgeon in 1881.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In the March issue of this journal Major W. H. Horrocks contributes a long paper on the Viability and Possible Variation of the Bacillus Typhosus, his experiments seemingly confirming the opinion that the viability of the B. typhosus is of short duration. The value of tuberculin in the treatment of tuberculous affections is discussed in a paper by Lieutenant-Colonel F. H. Treherne, who gives the result of 34 cases, most of which received benefit from the treatment, and in no case can the treatment be said to have been a failure. Captain W. Byam writes on Malaria in Kassala in 1909, and Major M. Sykes, of the 5th Battalion, Yorkshire Regiment, makes an interesting report on a forced march, concerning which Lieutenant-Colonel C. H. Melville contributes a short appreciatory note. The needs of ambulance units are again met by a note on Improvised Stretchers from the pen of Colonel H. E. R. James. The first part of an abridged report of a tour from Freetown to Monrovia through the Protectorate of Sierra Leone and Liberia, by Major A. Pearse, makes very interesting reading; as does also an illustrated account of the Eland of the Bahr-el-Ghazal Province, contributed by Major H. Ensor, D.S.O.

THE OUTBREAK OF MEASLES AT DARTMOUTH.

Surgeon B. Pick, R.N., is suffering from measles, and 21 fresh cases have occurred at the Royal Naval College.

Correspondence.

"Audi alteram partem."

CHARLES BELL AND THE MOTOR AND SENSORY FUNCTIONS OF SPINAL NERVES.

To the Editor of THE LANCET.

SIR,—It will greatly assist to settle the claims of Sir Charles Bell as the discoverer of the functions of the roots of the spinal nerves if it be fully admitted that by July 22nd, 1822, Magendie had designed and carried out a series of experiments which demonstrated beyond any further question that the "anterior roots are destined for motion while the posterior belong more particularly to sensation." Professor Waller in assigning the full merit of the discovery to Magendie leaves out of consideration certain essential circumstances. At the end of August, 1821,[1] Mr. John Shaw, Bell's brother-in-law and assistant, went to Paris; amongst the men he met there and to whom he explained the experiments and discoveries of the Windmill-street School was Magendie.[2] How much Magendie was impressed by Bell's work can be judged from two circumstances: first, he sent a message and afterwards a letter[3] to the English surgeon asking for a short account of his work in order that a "prize medal" might be awarded him; secondly, he published[4] at once (October, 1821) an account of Bell's theory and discoveries, founded on the communication made to him by Mr. Shaw. From that account we learn that he proceeded there and then to repeat Bell's experiments on the facial nerve, and on the fifth nerve, verifying the general accuracy of Shaw's communication. Further, he was placed in possession of two important facts: that the roots of the spinal nerves were different in function, and that the fifth cranial nerve belonged to the spinal series, from which it naturally followed that the results obtained by Bell's experiments on the fifth cranial nerve might be transferred to the spinal nerves. In 1821 Magendie's experimental work was connected with the mechanism of the circulation; in 1822 it concerned the results of sections of nerves. Dr. Leonard Guthrie[5] has already given an account of Magendie's surprise when after publishing the results of his first experiments in July, 1822, he received a note from "M. Schaw" claiming priority for his master, "M. Ch. Bell." From the facts narrated here there is no question as to who was the pioneer in opening up a scientific knowledge of the nervous system—it was Bell and not Magendie. An English student, however, on reading Professor Waller's "Introduction to Human Physiology," must conclude that Bell had no part in the discovery of the function of nerve roots.

The real point of difference, as far as concerns Professor Waller and myself, is in the interpretation of what Sir Charles Bell meant by "cerebral" and "cerebellar." By "cerebral" Professor Waller understands him to mean motor and sensory nerve fibres, and by "cerebellar" fibres "which serve to govern vital actions." On the other hand, I translate "cerebral" to mean motor and "cerebellar" to mean

[1] Letters of Sir Charles Bell, London, 1870, p. 271.
[2] Narrative of the Discoveries of Sir Charles Bell, by Alex. Shaw, London, 1839.
[3] Letters of Sir Charles Bell, p. 275.
[4] Journal de Physiologie Expérimentale, 1821, tome i., p. 364.
[5] THE LANCET, March 11th, p. 697.

sensory, for the following reasons. Sir Charles Bell's inquiry was primarily devised to find out the function of the cerebrum and cerebellum. He traced the connexion of cerebrum to the anterior columns of the spinal cord through the pyramidal tracts and the relationship of the cerebellum to the posterior columns by means of its inferior peduncles. From the very commencement of his investigations in 1807 he recognised the difference between what we now call motor and sensory nerves, and knowing that the cerebrum received and gave out both kinds of fibres expected, when he came to experiment on the anterior roots and anterior columns, to find evidence of both kinds of fibres. What he actually found is most clearly and briefly related in his letter to his brother George (March 12th, 1810):—

> It occurred to me that as there were four grand divisions of the brain, so were there four grand divisions of the spinal marrow; first, a lateral (bilateral) division; then a division into the back and fore-part (dorsal and ventral divisions). Next it occurred to me that all the spinal nerves had within the sheath of the spinal marrow two roots—one from the back part, another from before. Whenever this occurred to me I thought that I had obtained a method of inquiry into the function of the parts of the brain.
>
> *Experiment 1.*—I opened the spine and pricked and injured the posterior filaments of the nerves—no motion of the muscles followed. I then touched the *anterior* division—immediately the parts were convulsed.
>
> *Experiment 2.*—I now destroyed the posterior part of the spinal marrow by the point of a needle—no convulsive movements followed. I injured the anterior part and the animal was convulsed. It is almost superfluous to say that the part of the spinal marrow having sensibility comes from the cerebrum; the posterior and insensible part of the marrow belongs to the cerebellum.
>
> Taking these facts as they stand, is it not most curious that there should be thus established a distinction in the parts of a nerve and that a nerve should be insensible?

No statement could be clearer as to the function of the roots. At this early date Bell recognised that the spinal roots were different in function and that the anterior root was "sensible" (motor in modern terminology) in function and the posterior "insensible," or sensory, for at this date Bell had concluded that there were two kinds of nerve, those carrying impulses to the brain and those carrying impulses from it (afferent and efferent, in the modern sense). The results of these experiments were accurately noted. The anterior or "cerebral" part of the spinal cord and its corresponding root did not yield quite the results he expected; he expected both motor and sensory disturbance, and only obtained motor. The results, however, gave him a clue to one function of the cerebellum, and shows how clearly he recognised the afferent or sensory nature of the posterior root. He had inferred that muscles were supplied with afferent as well as efferent nerves, and were coördinated while in action by impulses streaming in by the afferent nerves. He assigns to the cerebellum the function of "controlling the actions of the bodily frame." That followed as an inference from his discovery that the posterior roots and posterior columns of the cord were "insensible," "silent," or "secret." It will be thus seen how unjust Professor Waller is to his countryman when he infers that Bell found that "the anterior or 'cerebral' roots are motor and sensory, and that the posterior or cerebellar roots serve to govern vital actions." Bell expected them to be so in function, but when he applied the test of experiment he found the one sensible (motor) and the other insensible (sensory).

I have no wish, indeed it would be impossible for me, to obtain a dialectical victory over a brilliant exponent of the methods of Magendie, nor do I desire in any way to touch on the great and well-founded reputation of Sir Charles Bell. But I do wish again to emphasise the importance of his method. From a consideration of the anatomy of the brain and nerves he sought to formulate a theory which would account for the arrangement of parts. He proceeded to test his theory by observation and experiment year after year from 1807 to 1821, his only means of publication being his daily lectures. The discovery of the function of the spinal roots was merely an incident in the prosecution of a great endeavour. Since Bell's time anatomy and physiology have been divorced to their mutual loss, for I am certain no great discovery can be made in the mechanism of the animal body unless the problems suggested by a consideration of structure are resolved by the methods of experimental physiology.

I am, Sir, yours faithfully,

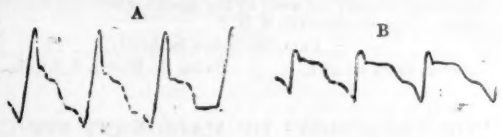
ARTHUR KEITH.

Royal College of Surgeons of England, London, W.C., March 9th, 1911.

THE SPHYGMOMANOMETER AND THE SPHYGMOGRAPH IN RELATION TO THE MEASUREMENT OF ARTERIAL BLOOD PRESSURES.

To the Editor of THE LANCET.

SIR,—Dr. C. O. Hawthorne, in his interesting article in THE LANCET of Feb. 18th on this subject, pointed out how the readings of the two instruments may give diametrically opposite results interpreted in the terms of "high blood pressure" and "low blood pressure"; that the sphygmomanometer may give a low record—e.g., 75 mm. of Hg of blood pressure—whilst at the same time the sphygmograph may indicate what has hitherto been interpreted as a "high-tension" record, and, conversely, that a high reading of the sphygmomanometer may coincide with a "low-tension" picture on the sphygmograph taken at the same time, and he points out the difficulty of reconciling the readings of the two instruments. He attempts to do this by drawing attention to the varying *duration* of the "pulse pressure" in different cases, and he thinks the type of sphygmographic tracing which has hitherto been called a "high-tension" one should really be named the "well-sustained blood pressure" record, and the "low-tension" sphygmogram should be called the "ill-sustained blood pressure" record, and he says "then all apparent contradictions of the sphygmomanometer and the sphygmograph disappear"; but I venture to think this is not the whole story or even the true explanation. These two sphygmograms were taken from the same patient at the same time on the same piece of paper as it was running through the instrument, yet how different they are. A answers to the



description of a "low-tension" or an "ill-sustained" pulse, B corresponds to that of a "high-tension" or "well-sustained" pulse. How is this to be explained? The blood pressure did not vary and it is inconceivable that the *duration* of the rise of pressure varied so quickly; moreover, these "well-sustained" and "ill-sustained" rises of pressure in the sphygmograms can be produced at will in the same pulse within a few seconds of each other, and this simply by *varying the pressure of the sphygmograph lever* on the artery—the apparent "ill-sustained" pulse is produced by light pressure of the lever and the "well-sustained" pulse by heavier pressure. In fact, the sphygmograph as at present made is useless as an exact scientific instrument for indicating either the "tension" of a pulse or the "well" or "ill-sustained" blood pressure, it simply records the whim of the operator.

I am, Sir, yours faithfully,

Leicester. REGINALD PRATT.

MUSCULAR SPASM IN CARIES OF THE SPINE.

To the Editor of THE LANCET.

SIR,—I have no wish to minimise the value of the excellent practical work done by Mr. H. J. Gauvain at Alton. Already his published results of treatment form a valuable contribution to surgery. But when he forsakes the concrete for the abstract, and, to support his theory of muscular spasm, assumes the action of a whole system of muscles *which does not exist*, it is, I think, right to protest.

If you will turn to his article in your issue of March 4th, and look at page 569, left-hand column, line 21, and onwards from there to the middle of the next column, you will find the following statements: (*a*) "The degree of deformity depends on numerous factors, of which may be enumerated ..... amount of muscular spasm." (*b*) "The causes of the primary deformity are ..... (3) muscular spasm secondary to the inflammatory process." (*c*) "The next point to be most strongly emphasised ..... is the effect of the muscular spasm." (*d*) "The eroded vertebral body under the constant

strain of its investing irritated muscles is gradually compressed and at length gives way. Deformity once commenced proceeds more rapidly as the mechanical advantage under which *the anterior spinal muscles* act becomes more pronounced, while the opposition offered by the posterior muscles simultaneously decreases." (*e*) "'As soon, however, as the body bends forward, as it must at the seat of the disease, the posterior muscles, because obliged to pull round the angle of the knuckle, work at a distinct disadvantage. ..... *The anterior muscles* improperly antagonised draw the body forward.' (Quoted from Goldthwait, Painter, and Osgood.) The muscles once contracted, if left to themselves, do not relax, but remain permanently shortened. Even if the disease does become arrested they still anchor down the bent and by this time the commonly ankylosed spine. ..... In dorsal caries the baneful effects of this are particularly apparent."

Now, Sir, where are these *anterior spinal muscles?* You will admit that they exist only in the imagination of Mr. Gauvain. If Mr. Gauvain were to examine a cadaver he would find that the longus colli ceases at the third dorsal vertebra, and that the psoas magnus commences at the twelfth. Between these vertebræ there are no anterior muscles at all, yet he speaks of their "baneful effects" as particularly apparent here. Moreover, in the very regions, the cervical and lumbar, where there are muscles which could conceivably act as he describes, the angular deformity is least marked. (I need not enter into the reasons for that here.)

If Mr. Gauvain's theory—or is it Dr. Goldthwait's?—of muscular spasm as a cause of deformity in spinal caries be correct, it must surely hold good for the dorsal region, which the disease most frequently attacks, and where that deformity is most marked. But it does not hold good, for there *are* no muscles. Is it possible that Mr. Gauvain has been unconsciously led away by the plausible and voluminous output of Dr. Goldthwait, M.D.?

I am, Sir, yours faithfully,

London, March 7th, 1911. PAUL B. ROTH, F.R.C.S.

THE TREATMENT OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS, WITH ESPECIAL REFERENCE TO INTUBATION AND TO RADIUM.

To the Editor of THE LANCET.

SIR,—I notice in your issue of March 4th a letter from Dr. William Hill in which he is kind enough to mention my name in connexion with anæsthesia during endoscopic procedures.

Having had the privilege of being associated with Dr. Hill as anæsthetist in a great number of his cases it was with great regret that I found myself unable to be present at his demonstration before the Medical Society, and I should like to take this opportunity of corroborating and slightly amplifying his remarks as to the methods I have so far found useful in meeting the requirements of the operator during the passage not only of the gastroscope but the œsophagoscope and laryngoscope as well. Whatever method of induction may be used it is obvious that anæsthesia can only conveniently be maintained by means of the Junker bottle and tube and, as Dr. Hill says, either chloroform, C.E., or pure ether may be administered by this method according to the circumstances of the case. I early learnt from Dr. Hill that there were three important desiderata in these cases—absence of mucus, a perfectly quiet anæsthesia free from cough and retching (and this in spite of alterations in the position of the head and occasional intermissions in the administration), and, lastly, in laryngoscopic examinations a tender consideration for the examiner's eye on which chloroform vapour acts as an irritant. The secretion of mucus may best be avoided by a preliminary injection of atropine and by abstaining from the use of ethyl chloride or closed methods of ether administration during the induction; C.E. slowly administered on a mask is my usual procedure. To obtain the necessary type of anæsthesia I find a preliminary injection of scopolamine and morphine of the greatest possible service; this also generally allows of fairly long intervals in the administration of the anæsthetic, during which the examiner can explore the larynx or trachea in comfort, free from the irritation of expired chloroform vapour. For intra-laryngeal cases I use the Bellamy Gardner tube, though I think there is room for some improvement here, and should like to see a laryngoscope made with an arrangement for the delivery of the anæsthetic vapour near its lower end. When the œsophagoscope or gastroscope is being used the respiration is not infrequently embarrassed, the patients are often old and feeble, and I find a slow stream of oxygen passed through the Junker bottle of great service.

I am, Sir, yours faithfully,

Talbot-road, W., March 9th, 1911. G. A. H. BARTON.

AUTUNITE (HYDRATED URANIUM-CALCIUM PHOSPHATE).

To the Editor of THE LANCET.

SIR,—Your readers may be interested by a brief account of the radio-active mineral referred to by Dr. Churchward in his article in your issue of March 11th.

Hydrated uranium-calcium phosphate, or "autunite," is a natural uranyl phosphate known for some time as existing in France (notably at Autun—whence the name) and in Cornwall, and recently proved to occur in great quantities in certain districts in Portugal. It is now worked for radium. The precise origin of the ore is debated, but it occurs largely as a crystalline deposit in tracts of decomposed granitic rock. The average mineral, as worked, contains between 1 and 2 per cent. of the uranium; but here and there are found "couches" containing clusters of uranite crystals, often of some size and of great purity. This, I take it, is the mineral used by Dr. Churchward. The pure hydrated crystal contains approximately the equivalent of 50 per cent. uranoso-uranic oxide; its theoretical "activity" is therefore patent to any student of radio-activity.

A most interesting point arises here. Certain French chemists, now engaged on the separation of radium from this ore, maintain that the available radium therein is in excess of the theoretical "radium-uranium constant" hitherto recognised. I think I am correct in stating that this has not yet been formally substantiated; but it would be interesting in this connexion to see Dr. Churchward's experiments repeated with an equal amount of, say, pitchblende containing the same percentage of uranium as the phosphate. On the "constant" theory the activity should be approximately equivalent.

If Dr. Churchward would state the amounts required I would gladly lend any medical man interested the requisite autunite from my collection should he care to go into the matter practically. I might add that the medical use of crude radio-active mineral is not entirely new. It has been employed in France, and also, I believe, by Professor His, of the Charity Clinic in Berlin, though on different lines from those indicated by Dr. Churchward. As a layman I naturally write of these matters with diffidence, but the subject is one in which I am much interested, as I have been connected with the scientific side of this industry since it first attracted attention in this country some few years back.

I am, Sir, yours faithfully,

B. HUGH ROLFE, M.A. Oxon., C.E.

Parliament-street, S.W., March 11th, 1911.

THE DISEASES OF MALNUTRITION.

To the Editor of THE LANCET.

SIR,—The agitation in favour of what is described as "standard bread" is one of those public movements which, rightly supported, are likely, both directly and indirectly, to be productive of good. Anything which has a tendency to improve the quality of the food upon which the poorer classes mainly rely for their sustenance must react beneficially upon the well-being of the community generally. The extent to which malnutrition is concerned as a primary cause of disease has probably never been fully considered nor accorded the measure of attention which its importance demands. The danger which environs everyone who has drifted into an advanced condition of "diminished resistance" cannot be disputed. The tissues are prone in such cases to become the prey of every pathogenic organism to the infection of which they may be exposed. One of the causes

of this diminished resistance is improper and insufficient food, precisely those exigencies to which, for the most part, the poor are subject. Take, for example, the case of corneal ulcers, so frequently met with among ophthalmic out-patients. In the great majority of instances this disease—practically never seen among the better classes—is unquestionably the result of nutritional defect. The cornea receives probably a small accidental abrasion of its epithelium, the repair of which in a healthy person would be generally effected in a few hours. But in those in whom diminished resistance is present no repair occurs and a corneal ulcer results, as seen so frequently among the children of the poor applying for relief at a hospital. When centrally situated these ulcers after repair are the cause of much diminution of vision, and an eye so affected is permanently damaged for visual purposes. It follows, therefore, obviously, from this, that if the staple food of the poor—namely, bread—can be rendered more nutritious by the introduction of a standard quality, the diseases of malnutrition, of which corneal ulcer is one, would become presumably less frequent in their incidence. Underlying this question there is, however, a national aspect from which it may be viewed. Corneal opacities, incurred in childhood, owing to the diminution of vision to which they give rise, become the cause of rejection of many an otherwise eligible candidate for the combatant services. Anything, therefore, which tends to improve the nutritive qualities of the food upon which the poorer classes mainly subsist must indirectly prove advantageous to the State as a whole.

I am, Sir, yours faithfully,

Wimpole-street, W., March 11th, 1911. PERCY DUNN.

THE ETIOLOGY OF "LATE RICKETS."

To the Editor of THE LANCET.

SIR,—In an article which appeared in THE LANCET of Oct. 23rd, 1909, I described a case of the type to which the term "late rickets" is usually applied. The child, a girl, was perfectly healthy up to the age of 13, about which time there appeared deformities of the lower limbs and curvature of the spine. She was treated without avail for nine months, at the end of which time the family left the district. I have recently traced the case, and regret to say that the condition shows no improvement, though the child's general development corresponds with her present age (15). She has had no medical treatment since I saw her in 1909.

A case of this kind has recently been shown before the Royal Society of Medicine, when the suggestion was made that the changes in many instances of so-called late rickets are in reality allied to those found in mollities ossium. In this connexion I may perhaps be permitted to recall that I made a similar suggestion in the article above referred to, and that you were kind enough to endorse this opinion in an editorial note.

I am, Sir, yours faithfully,

Bishop Auckland, March 6th, 1911. F. HERNAMAN-JOHNSON.

THE INTERCOMMUNICATION OF NERVES.

To the Editor of THE LANCET.

SIR,—In St. Thomas's Hospital Reports of the year 1874 a paper entitled "Intercommunication of Nerves" is published under my name, laying before the reader evidence in proof of three propositions—namely: 1. That structures bearing a functional relationship to one another are generally supplied by the same nerve. 2. That in regard to parts thus related, though not supplied by the same nerve, communications are often established between their respective cerebro-spinal nerves through ganglia. 3. That certain branches of the sympathetic have in their distribution a definite relation with cerebro-spinal nerves arising from the same region.

In this paper appears the hypothesis of the protective reflex and the basis of the doctrine of referred pain. Having read somewhere lately that the new views on pain, now almost universally entertained, took their origin from ideas expressed by Ross first published in the year 1888 in an article in *Brain* I hope you will give me space to draw attention to a prior claim of originality for these views.

I am, Sir, yours faithfully,

Streatham-hill, S.W., February, 1911. H. WALTER VERDON.

EYE-STRAIN IN RELATION TO GENERAL HEALTH.

To the Editor of THE LANCET.

SIR,—Mr. A. A. Bradburne, in his letter to this week's LANCET, avers that: "Brain-fag arises from congestion of the high visual centres owing to the difficulty of interpreting 'slightly fogged' pictures and unequal visual representations, and leads to anæmia of other centres and the various organs which demand a good blood-supply." Admitting the ingenuity of the argument, it is very doubtful, however, if the cerebral circulation is under the influence of the vaso-motor system. Leonard Hill persistently failed to get any vaso-motor effects by stimulating the sympathetic nerves supplying the brain, and Bayliss holds that the cerebral vessels are devoid of vaso-motor control. But, assuming the local-anæmia-cum-congestion hypothesis of Mr. Bradburne to be correct, how can it explain "eye-strain" in view of the fact that the brain itself is insensitive!

I am, Sir, yours faithfully,

London, March 11th, 1911. KENNETH CAMPBELL.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In your report in THE LANCET of March 11th of the pathological specimens shown at the Medical Society of London on Feb. 27th, the account of my case of Cyst of the Upper Extremity of the Femur has been so curtailed as to omit the most important fact—viz., that the cystic portion of the femur was resected. It was only after this had been done that the head of the femur appeared to be too small to serve any useful purpose and was resected, allowing the upper end of the shaft to be secured in the acetabulum. From your account it would appear as if the only treatment had been resection of the head of the femur. The portion of bone involved in the cyst was shown at the meeting.

I am, Sir, yours faithfully,

P. MAYNARD HEATH.

Weymouth-street, W., March 13th, 1911.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

New Maternity Hospital for Liverpool.

THE committee of the Maternity Hospital and Ladies' Charity has secured an admirable site for the proposed new hospital by the purchase of the old almshouses in Cambridge-street. By means of the sale of the present maternity hospital in Brownlow-hill, the committee will be enabled to pay for the site of the almshouses and other incidental expenses. The surplus, if any, will be devoted to an endowment fund of £20,000, which Sir William Hartley made a condition antecedent to the erection, at his personal cost of not less than £15,000, of a new hospital capable of meeting the demands of the charity. Towards the £20,000 endowment, over £10,000 have already been raised, and as soon as £5000 more are forthcoming building operations will be commenced. The site has had the approval of Sir William Hartley, and if it had not been promptly secured the lands would have passed into other hands as a site for carriage works. Situated midway between the University of Liverpool and the Infirmary for Children, the old almshouses for widows will appropriately give place to a hospital for women and a training school for nurses and midwives. The almshouses were erected in 1789, while the Ladies' Charity was founded in 1796, its first maternity hospital being erected in 1841. In 1869 the charity was amalgamated with a kindred institution, so that it has been continued for upwards of 40 years on the present basis, and for 115 years since the foundation. The need for a new maternity hospital is pressing. Within the boundaries of Liverpool 23,600 children were born in 1910. The maternity hospital, with its 23 beds, was the only provision outside the workhouses for all the cases from the poorer classes presenting difficulties. Over 100 cases, after having been deemed suitable for admission, were refused for lack of room—a fact amply demonstrating the need for larger accommodation.

Mr. F. W. Lowndes and the Liverpool Police.

Mr. F. W. Lowndes has resigned his post as medical officer of the Liverpool police force after a distinguished career of 34 years, and will terminate his duties in connexion therewith on June 30th. Mr. Lowndes has always been recognised as a man brimming with public spirit. By his persistent advocacy of a united effort to further and to assist the monetary condition of the local charities, now 40 years ago, Liverpool is mainly indebted to him for its early foundation of the Hospital Sunday collections. He was also the first to suggest the establishment in Liverpool of an annual medical service on St. Luke's day, an institution which has now become very popular, and which has been ministered to by some of the best-known preachers of the day. During a long and useful career at the Liverpool Lock Hospital, with its 50 beds (now a special department of the Royal Infirmary), he was always in the van of any movement for the betterment of the female patients, and he greatly interested himself in promoting their welfare on their discharge. He contended almost single-handed in this worthy cause. The closing of the hospital, in so far as the in-patients were concerned, was a great grief to him, as none knew better than he the value, physically and morally, of such an institution. He was greatly interested in toxicology, and figured in many sensational criminal cases, notably at the trial of Flanagan and Higgins, the sordid child poisoners, who were convicted and hanged in 1884; and was also a telling medical witness at the trial of John Conway, who was hanged for the brutal and mysterious murder of a young lad. Mr. Lowndes was instrumental in securing an up-to-date mortuary at the Prince's Dock, and also interested himself in gaining better accommodation for medical witnesses at the assizes. He was, if not the first, one of the earliest pioneers in advocating the abolition of the dirty practice of "kissing the book" in courts of law.

The Liverpool Medical Institution.

The council of the aforesaid society, with the sanction of the trustees, unanimously decided to propose a change of name from "The Liverpool Medical Institution" to that of "The Medical Society of Liverpool," to the members at the annual meeting held on Jan. 12th. The proposition of the council was then carried by more than the requisite majority. An agitation shortly afterwards sprang up in favour of reverting to the old name, and, after a discussion at a special meeting called for the purpose, a reversal of the decision arrived at in January took place.

March 14th.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

Royal Victoria Infirmary, Newcastle-on-Tyne: Annual Court of Governors.

ON Saturday, Feb. 25th, the annual court of governors was held in the out-patient hall of the infirmary, the Lord Mayor (Sir William Stephenson) presiding. There was a very large attendance of governors, including Sir George Hare Philipson, Sir Thomas Oliver, and Sir Riley Lord. The Lord Mayor moved the adoption of the reports, commenting on the fact that the income had not come up to the expenditure, though the deficiency was less than that of last year. The workmen's subscriptions showed an advance during the year of £784—excellent considering the labour difficulties, stoppages, and inconveniences, and this was very hopeful. His lordship then referred in a brief way to the chapel dispute, which he hoped might now be in a fair way of being settled. Sir George Philipson seconded the motion, which was adopted. Mr. William Sutton then presented the financial statement for adoption. The total income had been £33,559, as compared with £31,242 of last year. The total expenditure had amounted to £36,593, as compared with £35,540 of last year. The deficit on the year's working amounted to £3034, that in 1909 to £4297, showing a reduction of £1263. He hoped they had begun a successful movement in this matter and that their income and expenditure might be more equal. He referred in terms of satisfaction to the gift of £1000 from the Newcastle Coöperative Society to endow two cots in celebration of its jubilee. Referring to the workmen's subscriptions, he said they amounted in 1901 to £5000, while last year they were £17,000. The number of out-patients in 1906 was 50,000, and now in 1910 it had reached 90,000. Mr. Blake, in seconding the adoption of the financial statement, wished to urge upon the governors that the committee was not in any way extravagant, and he said that taking the whole of the people with whom they had to deal the expenditure per patient per day is less than 2*s.* 10*d.* The expenditure on sisters and nurses was higher than in other places because there were fewer patients per nurse. Moreover, in the feeding arrangements only the very best possible food was supplied. The report was adopted. Sir Riley Lord then presented the report of the subscriptions committee and gave some interesting figures showing how meagrely certain districts, from which large numbers of patients were sent, supported the infirmary. He controverted the impression that the institution should be solely supported by the working-classes, saying that the wealthy classes benefited quite as much from the infirmary as the working classes, for the former had the benefit of surgeons who had gained wide experience, knowledge, and skill from infirmary practice. With regard to subscriptions, he regretted to say that there were many serious deficiencies from some places as between the amount subscribed and the number of patients sent in. In some of the large works the deficiency was as much as £300. Twenty-four collieries round the city of Durham sent patients costing the institution £422 more than was subscribed. Twelve of those collieries did not subscribe a penny and the rest subscribed something. Other instances were given as to this failure to subscribe. The report was seconded and adopted. The house committee and selection committee for the ensuing year were then elected.

As to the above account of the proceedings at the Royal Infirmary governors' annual meeting, the dominant feature of the report seems to be the increased support given by the workmen to the institution, the amount being collected in an organised way over the whole of Tyneside and the various colliery parts of Durham and Northumberland. It will be seen that thus subscribed in a coöperative fashion the income from this source is more than half the total income of the institution. So far so good, there could be no complaint of such organised measures. The consideration of the remarks falling from the mover of the adoption of the report of the subscriptions committee compels one to wonder what the end is to be. He manifested complaint that there was some lack of response on the part of collieries and their workmen, having regard to the fact that some of the latter had been treated in the institution, and instances of this were given. To ask for the subscriptions of a colliery because some of its workmen have been treated in a charitable institution, and to urge a continuance of subscriptions collected by means of small weekly donations of 1*d.* or 2*d.*, carries with it the almost inevitable corollary that a subscription given means the right to free treatment. There is a positive danger that the whole object of the infirmary as a charitable institution may be lost sight of, and, indeed, examples of this are not infrequently met with in this district; for instance, remarks are constantly made to practitioners who have lost patients: "I took the child to the infirmary; my husband pays to it!" While there are undoubted advantages to be gained mutually both for the house committee and for the workmen from the large subscriptions collected for the infirmary, there is a source of danger underlying the system, which may perhaps only be realised when it is too late, and thus the whole character of the institution may be altered.

Barrasford Sanatorium.

On March 7th the annual meeting of the Newcastle-on-Tyne and Northumberland Sanatorium was held in the Royal Infirmary, under the presidency of Lord Armstrong. The committee were able to produce a favourable report from several points of view. The number of patients treated during the previous year was 163, while some 62 were rejected as unsuitable for such treatment. Financially the sanatorium appears to be satisfactory, since the committee can report a reduction of a £3000 deficit in 1907 to now about £230. The income for last year was £4367 15*s.* 9*d.*, and the expenditure £4134 8*s.* 5*d.*, leaving a balance of some £233 to be carried to the capital account. "The committee feel that the institution has by now proved its necessity in

the county, and would therefore justify the support of Northumbrians in aiding them to do a work which can be regarded as of the first importance in raising the standard of health, and endeavouring to stamp out a disease which cuts down so many young and promising lives."

March 13th.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol General Hospital.

THE Lord Mayor of Bristol presided at the half-yearly meeting of this institution on March 13th, and was supported by the Bishop of Bristol and the High Sheriff. The annual report showed a more satisfactory state of affairs than in 1910. The in-patients showed a decrease of 49 (2651 as against 2700), due to the fact that the accommodation for in-patients is at present taxed to the utmost; the out-patients were 40,043, the largest number yet recorded. The average stay in hospital was 24·8 days, and the proportion of beds in average daily occupation was 90 per cent. The dental department, working in temporary premises, had dealt with 4891 patients, but at such inconvenience that some better accommodation is urgently necessary. The ordinary income, £12,071, is the largest since 1904; the ordinary expenditure amounted to £14,757, an excess of £2686 over income. The balance due to the treasurer has, however, been reduced to £2216; and workpeople's contributions amount to £2335. An important expansion of the hospital premises is to be made to accommodate a lying-in ward and ampler provision for other female patients, together with certain other necessary departments. The estimated cost is £45,000, and the Lord Mayor has promised to preside over a meeting at the Guildhall for the purpose of raising the money. Some generous contributions have already been received, including one of £5000 from Mr. Henry Overton Wills, Chancellor of the University. A pleasant feature of the meeting was the kindliness of the allusions to the work of the staff and students. The general hospital committee is clearly fully alive to the wider responsibilities of a hospital in regard to teaching and research.

Antivivisectionists in Bristol.

The National Antivivisection Society, which has recently opened a shop in Clifton for the dissemination of its literature, held a meeting last week at the Victoria Rooms, at which Mr. Stephen Coleridge was advertised to speak on the Research Defence Society. Mr. Stephen Paget asked to be allowed to speak from the platform on equal terms. In consequence of this request, with which the Antivivisection Society complied, the large hall was well filled. After introductory remarks by the chairman, Canon Talbot, Mr. Coleridge spoke for 10 or 15 minutes, chiefly criticising cancer research. Mr. Paget's 20 minutes were occupied with an account of the Research Defence Society, its purposes, and the number of its membership, while he added an effective summary of the extent to which vivisection is in daily use on behalf of the national health and with the sanction of the nation through its representatives in Parliament and other governing bodies. He defended the use of animal experiments in cancer research, agreed with Mr. Coleridge as to the need of more inspection, and concluded by entreating the "man in the street" to ask his own doctor what he thought of vivisection. Various questions were put, to which both Mr. Coleridge and Mr. Paget replied, and each spoke for ten minutes in conclusion, Mr. Coleridge having the last word. No vote was taken; but so far as the cause of scientific research is concerned, it is to be hoped that Mr. Paget will find Mr. Coleridge's platform open to him in other places.

Royal Hospital for Children and Women, Bristol.

At the annual meeting of the supporters of the Children's Hospital, Bristol, the secretary's report included various items of interest. First, he said that Their Majesties the King and Queen had extended their patronage to the hospital, in succession to King Edward VII., who had been its patron. The year's work consisted of the treatment of 767 new in-patients and 5408 new out-patients. The financial position is fairly good; the income was £4808 14*s.* 10*d.* and the expenditure £5128 3*s.* 4*d.*, leaving a balance due to the treasurers of £319 8*s.* 6*d.*, as against £155 13*s.* 2*d.* last year. Subscriptions and donations amounted to £1540 17*s.* 3*d.* The fund to provide a new out-patient department had increased during the year by over £200. The legacy account showed a balance at the bank of £381 2*s.* 10*d.* The Sheriff of Bristol, Mr. George Riseley, who took the chair, urged the necessity of coördinating the hospital work of Bristol owing to the wastefulness of the present competition and want of system which are apparent to unprejudiced laymen as well as to members of the medical profession. Mr. Riseley said it was a pity the existing hospitals had gone so far in their separate careers that it was too late to think of concentrating all their work in a single building. These remarks were warmly supported by Dr. Bertram Rogers, senior physician to the Children's Hospital, who said that its position at the top of a steep hill made it almost inaccessible for cases of acute illness. A letter of congratulation from Queen Alexandra to Miss Parry of Alveston, who has done a great deal for the hospital in securing financial support, was also read.

Poor Milk.

At Bristol police-court recently the National Dairy Company was summoned in respect of two samples of milk, one being deficient in milk fat to the extent of 17·33 per cent., and the other containing 43·53 per cent. of added water. The magistrates inflicted a fine of £20 in each case and 5 guineas costs.

The Plymouth King Edward VII. Memorial Fund.

At a meeting recently held in Plymouth in connexion with the memorial to the late King it was decided to erect, at a cost not exceeding £500, a suitable wing at the Didworthy Sanatorium, to accommodate six beds, to be used for patients from Plymouth, and to be named the "King Edward VII. Pavilion." It was further determined that the remainder of the money subscribed should be vested in trustees for the support of a "consumption dispensary" in Plymouth.

A Plymouth Research Defence Society.

It was decided at a meeting last week to form a Plymouth, West Devon, and Cornwall branch of the Research Defence Society. Mr. W. Paul Swain was elected president and the Rev. Dr. Trelawny-Ross, Admiral Marrach, and Colonel M. Giles vice-presidents, and Mr. R. Jaques honorary secretary.

The Health of Taunton.

Dr. H. J. Alford, the medical officer of health of the urban and rural districts of Taunton, in his annual report for 1910, states that the death-rate in the urban districts was 12·6 per 1000, the corrected death-rate being only 11·7 per 1000, the lowest recorded. Six deaths were due to zymotic diseases, compared with an average of 18 for the past 10 years. The birth-rate was 21 per 1000. The infantile mortality was 76·2 per 1000 births. This decreasing rate Dr. Alford believes to be due to the Notification of Births Act and the appointment of a health visitor. In the rural districts the death-rate was 14·3 per 1000, the corrected death-rate being 11·2 per 1000. Seven deaths were due to zymotic diseases. The birth-rate was 20 per 1000. The infantile mortality was 46·3 per 1000 births.

The Health of Lynton (Devon).

Dr. H. J. Edwards, the medical officer of health of Lynton, in his annual report for 1910 states that 19 deaths occurred, equal to a rate of 10·76 per 1000. Of this number one was over 90, two were more than 80, six were above 70, which certainly speaks well for the health of the district. Only one of the deaths occurred in an infant under 1 year. The birth-rate was 19·26 per 1000. Only one infectious disease was notified, and that in a visitor who arrived in the initial stage of enteric fever. Dr. Edwards states that the rainfall was unusually heavy during 1910—viz., 54·16 inches, as compared with 41·95 in 1909, and 38 inches, the average for the past 35 years.

"Loose and Shadowy Assertions."

At the Frome (Somerset) county court on March 7th, before his honour Judge Gwynne-James, Dr. A. Sykes-Ward sued a man for 10 guineas for medical attendance. For the defence it was contended that some of the visits for which plaintiff claimed had not been made, and that there had been a lack of skill in his treatment of the case. His honour, in giving judgment for Dr. Sykes-Ward, said there was not a tittle of evidence that the visits charged for had not been made and that the treatment was not of the best.

March 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Question of Precedence between the Royal Colleges.

FOR some years past the Royal College of Surgeons of Edinburgh has questioned the right of the Royal College of Physicians of Edinburgh to take precedence at public functions. In 1901 Lord Balfour of Burleigh, then Secretary for Scotland, accorded to the Royal College of Physicians precedence on the occasion of the presentation of addresses to His late Majesty King Edward VII., and intimated to the Royal College of Surgeons that this decision would be acted on by the Scottish Office until disturbed by any higher authority. Recently the Royal College of Surgeons presented a petition to the Lyon King of Arms, claiming on various grounds that it is on all public and ceremonial occasions entitled to precedence over the Royal College of Physicians, or otherwise that such precedence should be granted it. The petitioners submit, with reference to the decision of 1901, that no power to deal with such matters has been committed to, or is possessed by, the Secretary for Scotland, and that the decision, which was given on representations by the Royal College of Physicians without any opportunity being given to the petitioners for being heard thereanent, and which subverted the existing usage, was beyond the jurisdiction of Lord Balfour, and is wholly inept and ineffectual in law. Answers to this petition were lodged by the Royal College of Physicians and Dr. Byrom Bramwell, the President, stating that on Feb. 9th, 1911, they presented a petition to His Majesty the King on the matter, and submitting that the present proceedings before the court of the Lyon King ought to be sisted *in hoc statu* to await the declaration of the King's pleasure on the petition of the respondents. The respondents maintain that the petitioners have no right to precedence over them by usage or by any other title. On March 3rd the Lyon King of Arms intimated that he had fixed Thursday the 9th for the purpose of hearing parties as to further procedure. On March 8th the petitioners were informed by the Lyon King that he had received a letter from the Secretary for Scotland, who stated that after consultation with the Lord Advocate he was of opinion that the Lyon King had no jurisdiction in the matter, and that the proper course was for him to decline to jurisdiction. He therefore would issue an interlocutor in terms of the instructions he had received. Following this communication the Royal College of Surgeons, through its agent, intimated its desire to protest in the strongest possible way against the issuing by the Lyon King of an interlocutor in terms of the instructions of the Secretary of State for Scotland, stating that the College did not consider it within the province of either the Secretary of State for Scotland or the Lord Advocate to interfere with one of the courts of the realm in the discharge of its functions, and intimating that it would at once appeal against the interlocutor which the Lyon King had intimated that he was about to issue. The interlocutor was issued on March 9th, and the Royal College of Surgeons appealed against it.

Death of Dr. Andrew Smart.

The death occurred on March 8th of Dr. Andrew Smart at his son's house in Hendon, in his 87th year.

Aberdeen Dispensary: Serious Financial Situation.

The annual meeting of the supporters of the Aberdeen Dispensary, Maternity Hospital, and Vaccine Institution was held in the Town Hall, Aberdeen, on March 7th. In the annual report the committee makes a special appeal for support, calling attention to the growing seriousness of the position now occupied by the Dispensary and Maternity Hospital in consequence of the increasing debt. Unless successful efforts are speedily made to relieve the pressure upon the finances the operations of these institutions, which have hitherto been worked under one board, will have to be either contracted or suspended altogether. The committee appeals most earnestly for adequate funds to carry on the work. The committee of management has under consideration the preparation of a scheme for the separation of the dispensary from the Maternity Hospital and the creation of a new board for the management of the latter institution. In this way it is hoped that the future financial position, both of the dispensary and of the hospital, may be put on a more satisfactory basis. A motion to adjourn the meeting for a month was unanimously agreed to. In the meantime a committee has been appointed to inquire into the financial position and confer with the medical staff and other parties interested to ascertain whether it is possible to continue the institutions and on what conditions.

Tuberculosis and Occupation in Aberdeen.

Dr. Matthew Hay, medical officer of health of Aberdeen, in his report on tuberculosis, gives statistics regarding occupation and tuberculosis in Aberdeen. He finds that the percentage of deaths from phthisis to deaths from all causes is highest for printers and lithographers (33 per cent.), stonecutters and masons (31 per cent.), and clerks (26 per cent.). These are considerably above the rest. The percentage is lowest for bakers, carters, joiners, and labourers, with from 7 to 9 per cent. In a table giving the death-rates from phthisis and other causes per 1000 persons employed in the selected occupations, and for comparison the corresponding death-rate among the whole population of the city at ages above 21 years (males and females being separately distinguished), it is shown that stonecutters and masons stand above all others with a death-rate 5·7 per 1000 from phthisis—that is, three times as high as the average rate, 1·9, for males above 21 years. If allowance be made for the inclusion of wallers, among whom the mortality from phthisis can scarcely be greater than the average, the death-rate of persons actually engaged in the cutting and hewing of granite is probably 6·2 per 1000. Next to stonecutters come printers and lithographers with 4·5 per 1000. Then combmakers with 4·3, clerks with 3·8, and tailors with 3·2 per 1000. Such are the occupations of those investigated in Aberdeen that may be said to suffer unduly from phthisis. The fact is noted that dressmakers and milliners do not suffer to the same extent as tailors and clerks from phthisis, and Dr. Hay suggests that the somewhat larger amount of physical exercise may in part account for this, although it does not seem to have the same effect on tailors; also, in the death registration, the occupation may not, especially in the case of younger women, be always stated. Carters and engineers (including blacksmiths and similar workers in iron) are the healthiest of occupations for males dealt with. Attention is drawn to the exceptionally large number of deaths among stonecutters after 55 years of age. In nearly every other occupation except labourers phthisis is relatively rare as a cause of death after that age, and it is possible that in Aberdeen at any rate the large average among labourers is due to the presence among them of former stonecutters. From careful comparing of statistics it seems to be proved that the use of pneumatically driven tools, which produce more fine dust than the chisel, has prevented stonecutters and masons from sharing in the general decline of the death-rate from lung diseases. Dr. Hay says that use of closed sheds in place of the old open ones may account for the diminution of diseases of the lung other than phthisis in these occupations during the last five years, for while the closed shed increases the liability to inhale dust it affords some protection against cold. Dr. Hay suggests that entrance to trades with a high mortality from phthisis should be guarded, as far as possible, from youths with a definite family history of tuberculosis or with defective chest development or lung weakness.

Victoria Hospital, Dundee.

The annual meeting of the supporters of the Victoria Hospital, Dundee (formerly the Incurable Hospital), took place on March 10th. Dr. Martin Whyte, in seconding the adoption of the report, said that some cases which had been admitted as incurable had been cured. He wished that the question of treating advanced cases of phthisis could be faced. Many schemes were proposed for a King Edward memorial, but he did not think they could do better than follow the example of Glasgow. Dr. Alexander Campbell said that at the Victoria Hospital they took in advanced cases of phthisis. Dr. C. Templeman stated that the local authority recognised that it was its duty to deal with advanced cases of phthisis which were a serious danger. The report was adopted.

March 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Poor-law Guardians and Private Practice.

POOR-LAW guardians in Ireland in many instances attempt to interfere in the private practice of thei medical officers, and not infrequently even demand an explanation from a medical officer of some matter occurring in his private practice. The Local Government Board, curiously enough, has not discouraged this proceeding, and has even suggested that boards of guardians might with advantage attempt to arrange scales of fees to control the medical officers in their charges. This proposal has often been made, both by the Local Government Board and by local boards, in answer to the just complaint of the medical officers that many people, other than "poor persons," claim and obtain the benefit of free medical attendance. It is said that if people of moderate means could be sure of obtaining attendance for a moderate fee they would be willing to pay it, whereas at present they claim free attendance. The medical profession, however, while expressing willingness to see patients of moderate means for moderate fees, has steadfastly refused to recognise the right of boards of guardians to put pressure upon them. A determined effort is now being made in the Swinford district in county Mayo to coerce the medical profession. A vacancy having occurred in the post of dispensary medical officer a meeting was held of the local clergy and guardians. At this meeting a scale of fees was drawn up which the guardians proposed should be binding on the prospective medical officer. According to this scale, the medical officer was to afford advice, attendance, and medicine to all classes at certain fixed rates. It was proposed to insert the scale in the advertisement of the approaching election, and acceptance of the scale was to be a condition prior to appointment. The Local Government Board has, of course, had to point out that the insertion of such a condition in the appointment would be *ultra vires*. The local board, however, remains obdurate, and has decided not to make any appointment unless its wishes can be carried into effect.

King's Professor of Midwifery, Trinity College.

Mr. Thomas H. Wilson has been elected King's Professor of Midwifery in the School of Physic in succession to Dr. Henry Jellett, who resigned on being appointed Master of the Rotunda Hospital. Mr. Wilson has been gynæcologist to the Richmond Hospital for many years, and was acting professor of midwifery for a year after the death of Sir Arthur Macan. He is, therefore, a teacher of experience.

National Maternity Hospital, Dublin.

The report read at the annual meeting of the National Maternity Hospital last week showed that the number of intern patients during the year amounted to 898, whilst those attended at their own homes by nurses and medical men numbered 1135. There had been over 4000 attendances during the past year at the dispensary. The total income for the year amounted to £3650 5*s.* 11*d.*, and the total expenditure to £3665 5*s.* 7*d.*, leaving still an overdraft of over £4000. The hospital receives a grant of £250 a year from the Dublin corporation.

March 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Personal Attendance of Pharmaceutical Chemists at their Dispensaries.

LEGAL action has recently been taken in a case in which a pharmaceutical establishment was for the most part in charge of a man having only the status of a *préparateur en pharmacie*, the qualified principal being in attendance only from 5 to 7 P.M. Both of them were prosecuted in a court of justice, the former for the illegal practice of pharmacy and the latter as an accomplice in this offence. Counsel for the defence argued that all the prescriptions were dispensed in the evening under the supervision of the principal, and that during the early part of the day the assistant sold no medicines, but only such things as mineral waters and toothpastes. In the result the court fined the assistant 500 francs with time for payment, and fined the qualified principal 500 francs, to be paid forthwith.

An Exhibition of Artistic Productions by Medical Men.

A Salon Médical, or exhibition of the works of artists belonging to the medical profession, has been formed in Paris at No. 31, Boulevard des Italiens, and will continue from March 28th to April 5th. This exhibition, which has received the distinctive name of Salon des Asclépiades, will be open from 9 A.M. to 6 P.M. It will contain examples of painting, sculpture, pastel, engraving, and decorative art, whether previously exhibited or not, by medical men, *internes*, and medical students. In addition to the above-mentioned class of exhibits there will be a section reserved exclusively for medals and artistic objects having a connexion with medicine.

Election of a Member of the Academy of Medicine.

At the election of a member of the Academy of Medicine in the Section of Anatomy and Physiology 60 votes out of a total of 69 were given for M. Prenant, a professor in the Faculty of Medicine.

Immigrants from Infected Districts and the Protection of the Public Health.

The President of the Council and the Minister of the Interior have recently appointed a commission for the purpose of considering what measures might be taken for the protection of the public health in connexion with the admission of immigrants into France, regard being had to the conditions under which the immigrants travelled and also to their residence in towns. At a meeting of this committee a communication was received from M. Mirman, *directeur de l'Assistance et de l'Hygiène Publique*, who inquired whether in consequence of information supplied by the Minister of Foreign Affairs or in consequence of scientific progress the commission recommended any alterations of the existing method of dealing with these questions. In reply the commission recommended the continuance of the existing system, adding that there was not in its opinion any reason at present for taking special measures with respect to persons or goods coming from Manchuria or from Astrakhan, because in accordance with the general and permanent regulations of the maritime sanitary police all vessels arriving from countries infected with plague underwent careful sanitary inspection and were cleared of rats before discharge of the cargo. At the same time, it was necessary to watch the progress of the epidemic in these countries and to keep in mind that fresh developments might necessitate additional regulations.

March 13th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Number and Distribution of Medical Practitioners in Austria.

THE official figures dealing with the distribution of medical practitioners in this country are now published, and they afford a remarkable insight into the prevailing conditions. At the end of the year 1910 there were altogether 13,202 licensed practitioners, as compared with 12,426 in 1905. These figures include those members of the Army Medical Corps who have also at the time in question been carrying on practice outside their official duties, the military surgeon being in some places the only practitioner for miles and miles. The number of medical men has thus increased by over 6 per cent. in five years, and since 1887 the increase is 76 per cent., whilst the population has increased by only 28 per cent. The increase of medical students was also most remarkable. Whilst in 1880 the proportion of all matriculated students in the universities who took up medicine was 13 per cent., in 1891 the proportion was 42 per cent. of all students. Now the annual mortality amongst medical men in this country is 1·8 per cent., whilst the annual increase of the population is 1 per cent. In the period from 1885 to 1904 there were 12,300 graduations of students, whilst the number of practitioners increased by 4500. This shows that either a large number of those who obtained the diploma had to give up practising in this country, or else that the number of deaths of members of the profession has been far in excess of what

was to be expected, both facts indicating the existence of unsatisfactory conditions. The increase of the profession, against which many warnings have been issued, has had the result that on an average there is now one medical man for every 2175 of the population, whilst in 1887 the proportion was one medical man for 3242. The highest percentage of increase of medical men was in Vienna, where their number was 1377 in 1887 and 3046 in 1910. Similar conditions obtain for all the larger towns, which show an enormous increase of medical men, whilst the country districts become less and less popular with the profession, as is shown by the relative decrease of their numbers in comparison with the increase of population. The over-production of medical men tends to swell the number of practitioners in towns, where they prefer to turn their abilities to specialist branches. The number of specialists in the whole of Austria has not yet been published, but only the figures for the three largest cities. From these figures it appears that there are 475 specialists in Vienna, 71 in Graz, and 200 in Prague; in 1905 there were 361 specialists in Vienna and 52 in Graz. Thus 16 per cent. of all practitioners in Vienna, 25 per cent. in Graz, and 23 per cent. in Prague are specialists. As regards the health resorts, Karlsbad heads the list with 763 practitioners, Meran has 76, Marienbad has 69, Baden has 53, Franzensbad has 50, Bozen has 37, and Abbazia has 36. These few places show an increase of 17 per cent. within the last five years. The proportion of medical men to population varies. It is only 1 per 390 inhabitants in Olmütz, which is the worst figure, but the larger cities show comparatively better conditions than the smaller towns, the proportions being 1 to 670 inhabitants in Vienna, 1 to 590 inhabitants in Prague, and 1 to 1010 inhabitants in Trieste. As regards the territorial distribution in the country, the worst condition as regards the financial outlook prevails in Galicia, where 10,000 inhabitants can only support one practitioner, whilst in Lower Austria there is one practitioner for each 2080 inhabitants. There are 80 female practitioners, or 6 per 1000 of the total. In 1903 only nine were practising. Of these 80 ladies, 39 are in Vienna, and, as a rule, they have taken up the treatment of diseases of women and children. Nearly 60 per cent. of all practitioners hold appointments in the service of either the State or the district boards of health, or with the Krankencassa (contract practice). In the country districts 80 appointments have been vacant for more than two years, because the payment offered is not sufficient to attract applicants. The necessity of organisation in order to obtain better remuneration for professional services is at last becoming understood by 70 per cent. of the practitioners in Vienna, and also by a large proportion of those who have settled in the country districts. These are the only conditions which hold out a promise for the future of our profession in Austria.

The Austrian Cancer Research Society.

The Austrian Cancer Research Society was inaugurated a few days ago with elaborate ceremonial in the splendid hall of the University in the presence of many scientific and social celebrities and State functionaries. The president-elect, Professor von Eiselsberg, opened the meeting, and in a most instructive speech explained the aims of the new society. He said that there were already 600 members, who would strengthen the position of those by whom the research work would be conducted. He further remarked that two leading points must be kept in mind in these investigations—namely, the etiological factor of cancer and the therapeutic use of a serum. It was also in contemplation to found an asylum for cancer patients like the one in Heidelberg, where the sufferers could be treated with a faint hope of help. Professor Fränkel, the secretary of the society, delivered a lecture on the Problems of Cancer, in which he pointed out that biological and biochemical research was at present the chief means available for solving this important mystery. He said that the group of conditions termed "disposition" had at last been reduced to a simpler form by the discovery of Freund, who ascertained that the serum of healthy persons destroyed cancer cells, whilst that of cancerous persons left these cells intact. Continued research would be accepted from all sources.

Syphilitic Osteitis of Infants.

At a recent meeting of the Gesellschaft der Aerzte Dr. Goldreich showed an infant, three months old, who presented a remarkable appearance of the fingers. The first phalanx of each finger, as well as that of the second and third toe on each foot, were thick and very much broader than normal, imparting to the fingers and toes the appearance of bottle-shaped disfigurations. The child had a maculo-papulous exanthem on the trunk and also specific rhinitis; no medical treatment of any kind had been given. Examination by the X rays revealed the presence of a rarefying osteitis with secondary hypertrophic periostitis of the affected bones. The metacarpal and metatarsal bones showed similar changes, but these were not visible with the naked eye or palpable. Dr. Goldreich said that this condition, which was confined to the osseous structures, the soft parts not being affected at all, was very rare. Hochsinger has collected 65 cases of affections of the fingers alone and 12 cases where the toes were also the seat of disease. Under specific treatment there was generally very satisfactory improvement.

March 11th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Smyrna.

FROM Smyrna comes the news that two cases of cholera occurred there with fatal results on Wednesday last. Bacteriological examination proved that they were genuine cases of cholera Asiatica. The sanitary commission of Constantinople held an extraordinary meeting at which it was decided to submit to a strict medical examination and quarantine all the passengers coming from Smyrna. Some apprehension is felt in the Turkish metropolis.

The New Austrian Hospital.

The Austro-Hungarian ambassador announced to a gathering at an official reception that the new Austrian hospital will probably be opened at the end of next month. It is being constructed and equipped according to the most recent requirements of medicine and surgery. It is situated on a lofty plateau near the barracks of Tashkishla, not far from Taxim, a district beyond Pera, and commands a magnificent view of the Bosphorus. It is asserted, it seems with substantial reasons, that it will be the most modern and most efficiently equipped of all the numerous hospitals of Constantinople. The construction alone will cost, when completed, about half a million kronen (£20,833).

The Civil Medical Faculty.

This year, says a local newspaper, only six medical students were registered at the civil medical faculty of Constantinople. This small number is very striking, as in each of the previous years the number of entering students from different parts of the Ottoman Empire amounted to between 50 and 60. Two reasons are assigned for such a decline in the numbers. First, the qualified medical men, who are sent by the Government to the provinces, receive a very small salary. In some cases when employed in municipal service they get only 600 piastres a month and must not engage in private practice. The second reason is that the medical faculty, being at Haidar Pasha on the Asiatic coast, is too far from the centre of the city. The majority of students living in Stamboul must travel backwards and forwards on the local steamers, which is rather a costly business. There are few countries which need more urgently skilful civil medical men than Turkey, especially at the present juncture, when the whole empire seems to be awakening to its possibilities in every direction. In consequence of the distance the cliniques at Haidar Pasha are also attended by very small numbers of patients. All these facts have been taken into consideration by competent authorities under the presidency of the Minister of Public Instruction. After a long discussion it has been decided, by 26 votes against 2, to transfer the cliniques to Stamboul. The question of transferring the whole medical faculty from Haidar Pasha to Stamboul is also being seriously discussed at present.

Extraordinarily Inclement Weather.

From all parts of Turkey alarming news reaches the metropolis of an exceedingly severe winter. Old people say that they have not witnessed such extraordinarily inclement weather for the last 40 years. Everywhere snow is falling in great abundance, the thermometer showing for many weeks

20, and in some places even more than 30, degrees below zero. Snowstorms are raging and communications are interrupted. In the province of Erzerum the calamity of an earthquake has been added to the inclemency of the weather. At Jerusalem the snow attained the depth of about half a metre, which is quite unprecedented for that part of the country. In many places the snow tempests have caused great destruction of property and loss of human lives. Whole companies of men have been found frozen to death in the vilayet of Castamouni. The need and misery of the poorer population are appalling. Many sailing vessels went down in the Marmora and Black Sea. Also at Constantinople the winter has been persistently severe for about a month. Some days the thermometer showed 6° Celsius below zero, which is quite unusual for the Turkish metropolis. As I write these lines the weather seems to be changing and a milder temperature exists.

Terrible News of the Plague.

From Harbin *viâ* St. Petersburg comes really terrible news of the pneumonic plague as it rages in the Manchurian town of Fu-Chia-Tien. Human activity in this place seems to have completely died out; the streets are empty and deserted and all the houses are left desolate. Those who were not struck by the plague in the town itself fled terror-stricken and were overtaken by the black epidemic outside the town. The bazaars and markets are closed. Dogs alone roam in the streets, howling and feeding on the corpses of their former masters. The stench is horrible. The hospitals are abandoned. There are no ill people any more and no medical men—all have died. Only on a few beds lie the dead bodies of those who expired last. The only living human beings are the few Chinese soldiers that watch over the dead town. They stand in vain, as there is nobody within whom they need to watch. A little to the east of Harbin the plague has made quite incredible ravages. All the intensity of the epidemic seems to have been concentrated at a locality called Ashishe. Here the number of the deaths amount to 400 daily. In the course of only a few weeks whole city quarters have completely died out. The utter helplessness of the population, the lack of adequate medical assistance, and the fanaticism of the Chinese priesthood—that fans the savage instincts of the ignorant rabble—combine to create a situation of terror such as can only be met with in those far-off old-world places of barbarism. The Chinese authorities have lost their heads entirely. In many places priests hold public discourses to the effect that China is visited by the plague as a heaven-sent punishment for having allowed the Europeans to settle among the Chinese. Only the destruction of the foreigners could free the country from the epidemic.

March 2nd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Compensating Dairymen.

LAST summer an extensive outbreak of typhoid fever occurred among patrons of a particular dairy in Fitzroy, a northern suburb of Melbourne. The supply came from a farm a few miles out of the city, and it was proved that a typhoid carrier had been employed at this farm, and that there were several cases of ill-defined sickness among employees and children of the owner. The Board of Health quarantined the farm and destroyed the daily output of milk for some time, involving the owner in a very considerable loss. He subsequently applied for compensation, and this request was supported by a deputation of the Dairymen's Association. The Minister of Health declined to recognise the claim on the ground that there was plenty of evidence that the owner had not been sufficiently careful of his duty as a dairyman.

Australian Meat.

The Australian beef and mutton shipped to the Philippines under contract with the American army have given great satisfaction. Commissary-General Sharpe stated "frozen fresh beef of hind-quarters only and mutton were supplied from Australia in large quantities and were of universally good quality." Experiments were made with frozen beef that had been kept in cold storage for two years. Samples were sent to the army medical department and the Insular Bacteriological Bureau of Science, which reported as follows:—

The beef had none of the bacteria present in meat poisoning. The cooked meat (steak) lacked aroma, but had good flavour and compared favourably with fresh frozen beef, and the only gross evidences of long storage were slight discolourations of the fasciæ and a general loss of water.

Contagious Dairy Disease.

At the session of the Australasian Science Congress in Sydney, Professor Gilruth of Melbourne communicated a paper on an acute outbreak of inflamed udders due to B. lactis aerogenes. The symptoms were like those of ordinary garget, which was not recognised as contagious. The milking machine, which was badly kept, appeared responsible for spreading infection. Experimental inoculation of B. lactis aerogenes obtained from infected cows gave rise to acute inflammation of the particular quarter. The important point is that this bacillus is very common in piggeries and dairies, and might be the cause of most of the painful and swollen udders.

Consumption.

At the Sydney Science Congress Sir P. Sydney Jones read a paper dealing with the causes of consumptive incidence. He reviewed most of the accepted positions with regard to tuberculosis. He considered that where compulsory notification was in operation it was the bounden duty of the State to provide sanatoria and hospitals for advanced cases.

"The Fly Peril."

A somewhat sensational address was made by Dr. Burnett Ham, chairman of the Victorian Board of Health, at its last meeting, on the subject of disease transmission by flies. Dr. Ham urged a "crusade" against flies, and is having an illustrated wall card printed setting forth the dangers of allowing flies to breed without restraint and obtain access to food.

Decline of Rabbits.

The rabbit industry in Victoria is stated to be slowly but surely disappearing. The first export of frozen rabbits was made in 1894, in which year 14,928 rabbits were sent to England. Next year the total was 431,716. In 1900 the total was 5,678,224, and in 1905, 10,258,356. Since that year the total has gradually declined till last year it had come down to 2,841,648 rabbits exported. Exporters and agriculturists alike are pleased at this result. The former have all their available freezing plants occupied with meat and butter and cheese, while the latter view the gradual extinction of the rabbit pest with composure.

Health of Western Australia.

The annual report of the principal medical officer for Western Australia gives the population of that State as 274,755; the birth-rate 27·66, which is a decline of 3 per 1000 for the last 10 years. The death-rate was 9·85. Typhoid fever accounted for 3·07 per cent. of all deaths. No case of plague was notified. There is no system of sewerage anywhere in Western Australia, though one is being undertaken at Perth.

Consumption Hospital.

The hospital for advanced consumptives which is projected by the Victorian Government, and is to contain 100 beds, has been delayed in building owing to a difference in estimate of cost. The Government architects estimated the outlay at £10,000, but the lowest tender received was over £14,000. It has been decided to accept none of the present tenders, but to make some amendment of the plans and call for fresh tenders.

Feb. 4th.

Obituary.

WILLIAM HENEAGE LEGGE, M.R.C.S. ENG., L.S.A.

THE death occurred at Ringmer, near Lewes, Sussex, on March 6th of Mr. William Heneage Legge, at the age of 53. The son of Dr. William Legge of Derby, and grandson of the Rev. William Legge, historian, of Fakenham, Norfolk, William Heneage Legge was educated at Trent College and under Dr. Reid at Ore, Hastings. He became a medical student at Westminster and took the diplomas of L.S.A. in 1880 and M.R.C.S. Eng. in 1881. The first Boer war broke out at this time and Mr. Legge went out as medical officer on

a troopship. Returning to this country he settled at Ringmer and besides a private practice held some public appointments and took an active part in public affairs. His knowledge of all things archæological in East Sussex was probably as great as that of any of his contemporary observers, and he was a frequent contributor to archæological journals on these subjects. The funeral took place at Ringmer on March 11th.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council on March 9th the undermentioned diplomas were conferred upon the following gentlemen, who have now complied with the respective by-laws:—

Diploma of Fellow.—Ernest Marshall Cowell, M.D. Lond., L.R.C.P., M.R.C.S., University College Hospital; and Phirozshah Byramji Bharucha, L.M.S. Bombay, L.R.C.P., M.R.C.S., Bombay University and Middlesex Hospital.

Licence in Dental Surgery.—Thomas Benjamin Burke, Manchester University.

THE SMALL-POX EPIDEMIC IN LONDON.—During the past week there has been no marked change in the small-pox situation. On March 8th one fresh case (from Lewisham) and one death were registered. On March 9th there were five new cases, viz.:—Three from Poplar and one each from Shoreditch and Camberwell. On March 10th two new cases were notified, one from Poplar and one from Shoreditch, and on March 11th one from Hackney. At a meeting of the Metropolitan Asylums Board on March 11th Lord Donoraile, chairman of the statistical committee, gave out in answer to a request the following particulars in reference to the vaccination of the small-pox patients admitted at the South Wharf between Feb. 21st midnight and March 9th:—

There have been 52 genuine small-pox cases admitted. Of that number 36 were stated to have been vaccinated in infancy, of whom one has died; in three cases there was no evidence of vaccination, and two of those patients have died; 13 were not vaccinated, of whom five had died. The one patient vaccinated in infancy who died was aged 43 years; the two patients in whose cases there was no evidence of vaccination who died were aged 40 and 84 years respectively, and the five unvaccinated patients who died were aged respectively 1 month, 2 years and 4 months, 3 years, 4 years, and 25 years. Only one of the 36 patients said to have been vaccinated in infancy had been revaccinated before infection. He is a patient aged 10 years and is still alive. Two additional cases were admitted on Friday, but in those cases the condition as to vaccination is not yet ascertained.

On March 12th one case was reported from Shoreditch. No fresh cases were admitted on March 13th or 14th, the total under treatment being 48. This, with one new death, the tenth, makes a total of 58 genuine cases recorded up to March 15th. The London County Council at its meeting on March 14th unanimously resolved that for a period of three months chicken-pox should be made a notifiable disease, experience having proved that slight cases of small-pox are sometimes mistaken for chicken-pox. The satisfactory nature of the precautionary measures taken by the sanitary authorities is clearly shown by this slight activity in view of the extensive exposure that took place in many directions before the disease was recognised. In Stepney there has not been a genuine case of small-pox for 13 days—March 2nd was the last. There has been here no alteration or addition to the deaths from the report in our issue of last week.

THE ATTACK UPON THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.—A special court of governors of this hospital was held, under the presidency of Lord Peel, on March 8th, when the secretary read a report of the committee of management replying to the attack which had been made upon the hospital by *Mrs. Bull* and *John Bull*. The report reviewed all the charges that have been brought against the hospital in a way which convinced the meeting that their patients in the hospital are, and have been, treated in a manner reflecting the greatest credit upon the medical and nursing staff. The straightforward statement of the committee showed clearly that obviously unavoidable circumstances have been utilised for the purposes of sensational journalism. Dr. A. E. Garrod, the senior physician to the hospital, said that all the charges on investigation had proved to be utterly groundless. Sir Thomas Barlow, on behalf of the governors, moved a vote of confidence in the committee of management. This was seconded by Sir Trevor Lawrence and carried. Mr. Edmund Owen and Dr. D. B. Lees afterwards respectively moving and seconding a motion declaring the attack on the hospital to be unworthy of respectable journalism.

THE ANNUAL GENERAL MEETING OF THE ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—This meeting will be held on March 23rd at the Holborn Restaurant, London, at 3.15 P.M., when the election of officers and other business will be transacted. At 4.30 P.M. there will be a conference with delegates from other associations of medical men holding part-time appointments.

WILTSHIRE HOSPITALS AND THE KING EDWARD MEMORIAL.—£1069 have been collected in Swindon for the King Edward Memorial Fund, and this sum is to be devoted to the endowment of the Victoria Hospital.—It has been decided at Devizes that the memorial to the late King shall take the form of an extension scheme for the local hospital. Mr. A. Grant-Meek, the chairman of the institution, has given £500, and it is hoped that a substantial sum will be subscribed.

BIRMINGHAM AND MIDLAND COUNTIES SANATORIUM, BLACKWELL.—The forty-fifth annual report stated that there had been a substantial increase in the number of patients admitted, the total having reached 1755 with an average stay of 17·7 days as compared with 1672 in 1909. This was the highest number of admissions recorded. The average number of beds occupied varied from a minimum of 68·4 during the fourth quarter to the maximum of 99·9 in the third quarter. The average for the year was 85·2. The financial position was discouraging. Not only had there been a decrease in income of £6 2*s.*, but the expenditure had increased by £54 19*s.* 10*d.*, leaving an adverse balance on the management account of £117 11*s.* compared with £56 9*s.* 2*d.* in 1909.

THE ROYAL DENTAL HOSPITAL OF LONDON.—The annual general meeting of the governors of the Royal Dental Hospital of London was held on March 9th, when Mr. E. Lloyd-Williams, a vice-president of the hospital, occupied the chair. In presenting the report the chairman called attention to the fact that there was a mortgage of £38,623 on the hospital, for which a sum of £2655 had to be paid annually for interest and compulsory instalment of principal. Last year they were enabled to pay off an extra £1500 in addition to compulsory payments. The total sum received for the general fund was £7003, of which £2031 came from subscriptions. The number of patients treated during the year was 21,036 and the attendances were 56,209. The number of administrations of general anæsthetics was 12,081, involving about 111,258 individual operations.

THE ANNIVERSARY DINNER OF THE MEDICAL SOCIETY OF LONDON.—This society celebrated its 138th anniversary dinner at the Hôtel Métropole, London, on March 8th, under the chairmanship of the President, Mr. Charters J. Symonds. Covers were laid for more than 150 guests, and amongst the company present were the President of the Royal College of Physicians of London, the President of the Royal College of Surgeons of England, the President of the Royal Society of Medicine, the President of the Society of Tropical Medicine, the Master of the Society of Apothecaries, the Director-General of the Army Medical Service, the Inspector-General of the Navy Medical Service, the President of the Harveian Society, the President of the Hunterian Society, Professor A. Keith, Professor Howard Marsh, the Mayor of Marylebone, Dr. F. W. Mott, the President of the Ophthalmological Society, Dr. StClair Thomson, Sir John Tweedy, and Sir E. Venning. Sir Thomas Barlow proposed "The Medical Society of London" and congratulated the members on the prosperity of their society. Mr. Symonds, in replying, gave a most satisfactory account of the position of the society. Dr. Mott was then presented with the Fothergillian medal for his researches in the pathology of the nervous system, more especially in regard to syphilis. Dr. Mott, in his words of acknowledgment, rendered an eloquent tribute to the work which the London County Council are doing in the cause of scientific medicine. "The Guests" was the next toast, and was submitted by Dr. A. F. Voelcker. Dr. Goodhart responded to this toast, as also did the Mayor of Marylebone.

A DINNER TO SIR DAVID FERRIER.—A complimentary dinner is to be given by former students of King's College Hospital to Sir David Ferrier, F.R.S., to congratulate him on receiving the honour of knighthood. The dinner will be held on Wednesday, March 29th, and any King's man who may not have received an invitation is requested to communicate with the Honorary Secretary, Ferrier Dinner, King's College Hospital, London, W.C.

EASTBOURNE MEDICAL OFFICER OF HEALTH.—The town of Eastbourne becomes a county borough on April 1st next, and thus increased responsibility falls upon the heads of the various municipal departments. The town council, at its meeting on March 6th, decided to increase the salary of Dr. W. G. Willoughby as medical officer of health from £525 to £600 per annum, and as medical officer of the corporation sanatorium from £100 to £150 per annum, the increases to date from April 1st. Dr. Willoughby, the present President of the Society of Medical Officers of Health, has been medical officer of health at Eastbourne for 17 years.

THE BROWN DOG MEMORIAL.—On March 8th, at a meeting of the Battersea borough council, the law and general purposes committee reported that it had been asked by the donors of the Brown Dog Memorial for the return of the memorial and for the £300 which had been deposited with the council's bankers. The committee recommended that the brown dog and inscription should be destroyed and that the fountain should be retained and erected in a suitable place. No recommendation was made with regard to the £300 in view of the possibility of further legal liabilities. The report of the committee was adopted by 40 votes to 14.

FIFTH INTERNATIONAL CONGRESS FOR THALASSOTHERAPY (KOLBERG).—The Congress will take place at Kolberg in Prussia from June 5th to 8th next. It is under the protection of H.R.H. the Grand Duke of Mecklenburg-Schwerin. The committee of organisation includes the following gentlemen: Geh. Ob. Med.-Rat Professor Dr. Dietrich, 1st President; Geh. San.-Rat Dr. Röchling, 2nd President; and I. Bürgermeister Dr. Schmiedel, 3rd President. The secretaries are Dr. Kaminer, Herr Mann, general secretary of the Ostseebäderverband, and Dr. Margulies. The programme of the Congress is now prepared, and will be sent gratis by the committee of organisation upon application to the offices of the Congress, Potsdamerstrasse, 134b, Berlin, W.9.

BIRMINGHAM GENERAL HOSPITAL.—The board of management has recently issued the 131st annual report. The nursing staff has again been increased in order to reduce the working hours and to increase the time allowed for meals. The number of nurses is now 127. The enlargement of the X ray department and the more complete equipment provided has resulted in a considerable extension of the work, not only of the radiographic department but also in the treatment of lupus, skin diseases, &c. The necessity of treatment by radium was represented by the medical staff, and the board therefore entered into an arrangement to hire a quantity of radium on two days a week for six months. The number of in-patients under treatment last year was 5317, a decrease of 194, but the daily average was 308·5, an increase of 4·50.

CONVICTION OF A MEDICAL MAN FOR AN ATTEMPT TO PROCURE MISCARRIAGE.—At the recent assizes at Hertford, before Mr. Justice Bucknill, Mr. S. I. Lightfoot, a medical practitioner, was convicted and sentenced to five years' penal servitude upon an indictment charging him with using an instrument upon a young woman named Hill with intent to procure her miscarriage. It was not disputed that Hill, who is unmarried and lives in another town, went to the house of the accused, was examined by him, and that he used a catheter upon her which he left *in situ*, recommending her to return home and consult her usual medical attendant, or that premature confinement was caused. The defendant's case, however, was that eclampsia came on while the woman was in his consulting-room, and that he used the catheter as the nearest suitable instrument at hand in order to induce labour, sending her home because he could not keep her where she was; that entries in his books not stating the facts accurately were made in error by his wife; and that pressure of practice and forgetting the name of the medical man mentioned by his patient prevented him from informing that gentleman of what he had done. Leave to appeal against the conviction has been refused by the Court of Criminal Appeal.

A SOMERSET CENTENARIAN.—Mr. James Creedy, of Bridgwater, celebrated his hundredth birthday on March 6th.

PRESENTATION TO A MEDICAL PRACTITIONER.—Dr. L. S. McManus, one of the Direct Representatives of the medical profession on the General Medical Council, has for some months been prostrated by a severe illness. His many friends in Battersea, in order to show their sympathy in a practical manner, have presented him, through his son, with a cheque for £300, a pair of silver dishes, and an album containing an illuminated address. A bracelet has also been presented to Mrs. McManus.

A SOCIETY FOR THE STUDY OF HEREDITY IN BIRMINGHAM.—This society has been recently founded to study heredity in its bearings on the human race. It has for its President the Lord Bishop of Birmingham. The Right Hon. William Kenrick, Sir Oliver Lodge, Mr. Francis Meynell, and Mr. A. D. Steel-Maitland, M.P., are Vice-Presidents, and Mrs. Jordan Lloyd and Mr. H. Humphreys are the secretaries. The inaugural meeting was held on March 1st, when a large audience assembled to hear an address on "Human Heredity" by Professor J. Arthur Thomson.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Naval Medical Service.

Mr. MCKENNA, the First Lord of the Admiralty, makes interesting observations about medical matters concerning the navy in his statement explanatory of the Navy Estimates 1911–12. He remarks that effect has already been given to many of the recommendations of the committee appointed to inquire into the Naval Medical Service, but others of them are complicated by financial issues which remain for settlement. The right honourable gentleman does not specify the recommendations to which effect has been given. He states that he has for some time been giving his most earnest consideration to the serious problem of tuberculosis so far as it affects the seamen of the Royal Navy. He has caused an investigation to be made by the Medical Consultative Board into the means by which under the conditions peculiar to the naval service this disease can best be treated and its inception and spread checked. Mr. MCKENNA notes that arrangements have been made by the Admiralty with civil hospitals for the supply in the event of war of trained nurses who would form a reserve of additional trained nurses. The new force will be known as Queen Alexandra's Royal Naval Nursing Service Reserve.

Education (Administrative Provisions) Bill.

The Education (Administrative Provisions) Bill, which has been presented in the House of Commons by Mr. TYSON WILSON, acting in concert with members of the Labour Party, deals with the relation of the medical inspector of school children to the feeding of underfed children. The scope of the Bill is explained in a memorandum. It sets out that the object of the Bill is to remove from the education authority the final responsibility for saying whether a child is or is not underfed, and to impose that duty upon the medical inspector (should one exist), the medical officer of health, or other medical official. As the law stands, it rests with the education authorities to say whether there are or are not underfed children attending their schools, and in consequence whether the Act should or should not be put into operation. This, says the memorandum, has led to uncertainty of administration.

Clause 1 of the Bill enables the education committee, the school managers, and head teachers to ask the medical man to examine the child.

In Clause 2 it is laid down that the medical inspector must examine a child alleged, by the persons authorised, to be suffering from underfeeding, and the head teacher is empowered, pending the report of the inspector, to make temporary provision for the child. The second subsection annuls the limitation of the rate imposed by the third section of the Education (Provision of Meals) Act, 1906, and the third section legalises the feeding of children during the school vacation.

Other clauses in the Bill propose that the medical inspector should present an annual report on the physical condition of children attending school in his area, and that an appeal from the decision of the medical inspector to the Board of Education should be given in certain circumstances.

Rag Flock Bill.

A Bill has been introduced into the House of Commons by Mr. JOHN BURNS to prohibit the sale and use, for the manufacture of certain articles, of unclean flock manufactured from rags.

Sale of Margarine Bill.

Mr. KILBRIDE has presented in the House of Commons a Bill "to provide for the further prevention of the fraudulent sale of margarine." It was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 8TH.

Medical Practitioners and the Rebate on Motor Spirit.

Mr. GINNELL asked the Secretary to the Treasury, in view of the fact that the collection of motor spirit duty from manufacturers and dealers was the duty of the Revenue Department, by what authority did that Department, on failing to collect from those people, refuse the rebate due to a medical practitioner who was not bound to prove the payment of duty by those people; and whether the Chancellor of the Exchequer had sanctioned the refusal in such cases.—Mr. HOBHOUSE replied: In view of the fact that large quantities of motor spirit on which duty has not been charged, and is not chargeable, are held in stock throughout the country, rebate is refused unless the Commissioners of Customs and Excise are satisfied that duty has in fact been paid to the Crown in respect of quantities used by claimants of allowances on the duty. This is in accordance with the intentions of my right honourable friend the Chancellor of the Exchequer as embodied in the Finance (1909–10) Act, 1910. The identification of spirit on which duty has actually been paid can only be completed by the Customs and Excise officials on their being supplied with full information regarding the sources from which such spirit has been derived.

THURSDAY, MARCH 9TH.

Typhoid Fever in the Bog Area of Glones.

Mr. DUFFY asked the Chief Secretary to the Lord Lieutenant of Ireland whether any preventive measures had been taken by the Government to prevent a recurrence of the typhoid epidemic which visited and ruined so many families in the bog area of Glones, Athenry, all through last year; whether he was aware that the tenants were living in a wilderness of marsh and bog, and in constant terror of invading disease; whether the Browne estate in the district had been offered to the Commissioners; and whether, in view of the urgency of dealing with this fever-threatened district as soon as possible, he would direct the attention of the Estates Commissioners and the Congested Districts Board to the exceptional circumstances of this village with a view of removing the people on to the lands of the Browne and Monahan estates.—Mr. BIRRELL answered: Five cases of typhoid fever which occurred in two families at the place referred to were notified to the Local Government Board during the year 1910. The usual precautionary measures were carried out. It devolves on the sanitary authority and their officers, and not upon the Local Government Board, to take preventive action in connexion with outbreaks of infectious disease. The Glones section of the Browne estate has been offered to the Congested Districts Board, and the offer will be considered by them. The Monahan estate was offered for sale in 1906, but the offer was declined by the Board.

Beri-beri Cases at Galway.

Mr. PATRICK WHITE asked the Chief Secretary to the Lord Lieutenant of Ireland, as President of the Local Government Board, whether there were some cases of the disease known as beri-beri at present under treatment in the isolation hospital, Galway; whether he would state the number affected with the disease; the numerical strength of the nursing staff, and what provision had been made for their accommodation; whether one of the patients became delirious, and at the time he became so affected whether there was any male attendant in the hospital, or how he was controlled; whether the hospital was at times partly surrounded by water, and what means of ingress or egress there was to it from the mainland; and whether any precautions had been taken to provide male attendants in the event of any of the other patients becoming delirious.—Mr. BIRRELL said in reply: There are at present four patients from a Norwegian ship under treatment in the intercepting hospital in Galway, three of whom are undoubtedly suffering from beri-beri, whilst the other is under observation. The Local Government Board understands that the patients are in a well-ventilated ward in every way suitable for their treatment, and are under the charge of three qualified nurses, who occupy another ward and have the use of the kitchen. One patient became suddenly delirious and violent, but was got under control by the nurses and had become quiet before the medical officer arrived. The latter has since procured the assistance of two male attendants, one of whom will at all times be on duty and the other easily available. The hospital is built on the mainland, with the sea on two sides, and is accessible by foot, car, or boat.

The Isolation of Small-pox in Scotland.

Dr. A. P. HILLIER asked the Lord Advocate whether he was aware that the Local Government Board for Scotland, in a recent communication to the Public Health Committee of Edinburgh and Leith, had in suggesting the provision of further hospital accommodation for small-pox, alleged as one of their reasons for doing so the danger to the community consequent on the slackening of compulsory vaccination; and, if so, what steps the Local Government Board for Scotland proposed to take to bring this danger to the notice of other sanitary authorities.—Mr. URE replied: The honourable Member's inquiry is probably based on the wording of a report obtained by the Local Government Board for Scotland, which was communicated by it to the local authority of the city of Edinburgh. I am informed that the Board, on Feb. 28th, 1911, communicated with all the local authorities in Scotland that did not appear to have made provision for the isolation and treatment of cases of small-pox, requesting to be informed of the steps they proposed to take to secure that such provision would be available in the event of a case or cases of small-pox occurring.

Dr. HILLIER: Can the right honourable gentleman say that in that communication the ground alleged for making this recommendation was the increasing danger from the diminution in the number of vaccinations?—Mr. URE: I am not aware.

Notification of Births Act.

Replying to a question put by Mr. WEDGWOOD, Mr. BURNS wrote that the Notification of Births Act had been adopted for, or put in force in, 271 areas of local government. These included 29 metropolitan boroughs (including the City of London), 53 county boroughs, 54 non-county boroughs, 91 urban districts other than boroughs, and 44 rural districts. The right honourable gentleman appended to his answer the following tables:—

County Boroughs in which the Notification of Births Act is in Force, with the Infant Mortality Rates (Deaths under One Year of Age per 1000 Births) in 1905 and 1909.

Name of county borough.	Infant mortality. 1905.	1909.	Name of county borough.	Infant mortality. 1905.	1909.
Bath	91	83	Newport (Mon.)	125	115
Birmingham	154	134	Northampton	126	110
Blackburn	146	126	Norwich	174	119
Blackpool	133	112	Nottingham	155	150
Bolton	167	128	Oldham	150	119
Bootle	155	122	*Portsmouth	133	96
Bradford	144	116	Preston	154	136
Brighton	101	96	Reading	121	95
Burnley	173	156	Rochdale	133	104
*Burton-upon-Trent	87	102	Rotherham	123	116
Bury	147	130	St. Helens	134	150
Cardiff	118	103	Sheffield	167	118
*Chester	122	118	Smethwick	137	113
Croydon	95	80	Southampton	132	106
Derby	151	123	Southport	113	103
Dudley	167	140	Stockport	168	132
Exeter	122	99	Stoke-upon-Trent	147	128
*Great Yarmouth	132	125	Swansea	131	159
Grimsby	174	118	Wallsall	141	139
Halifax	131	97	*Warrington	147	130
Ipswich	144	92	West Bromwich	146	123
Kingston-on-Hull	152	114	West Ham	153	124
Lincoln	148	82	*Wigan	164	173
Liverpool	153	144	Wolverhampton	137	148
Merthyr Tydfil	193	143	Worcester	154	101
Middlesbrough	173	158	York	129	99
Newcastle-upon-Tyne	135	119			

* Act adopted since 1909.

County Boroughs in which the Notification of Births Act is not in Force, with the Infant Mortality Rates in 1905 and 1909.

Name of county borough.	Infant mortality. 1905.	1909.	Name of county borough.	Infant mortality. 1905.	1909.
Barrow-in-Furness	135	81	Leeds	151	122
Birkenhead	127	123	Leicester	148	127
Bournemouth	83	100	Manchester	157	134
Bristol	122	100	Oxford	116	75
Canterbury	119	73	Plymouth	135	131
Coventry	108	97	Salford	148	141
Devonport	113	96	South Shields	146	137
Gateshead	138	112	*Sunderland	142	135
Gloucester	118	95	Tynemouth	153	129
Hastings	113	79	West Hartlepool	146	113
*Huddersfield	119	95			

* Compulsory notification of births has been in force under the provisions of local Acts in Huddersfield since 1906 and in Sunderland since 1907.

The Adulteration of Food.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether, in the contemplated amendment of the law relating to the adulteration of human foods, he would consider the advisability of including within the term adulteration not merely the addition to any article of food of some extraneous matter of a possibly deleterious character, but also the abstraction from flour, milk, rice, and other natural food products of ingredients of high food value for the sake of improved appearance or increased commercial profit without any intimation to the consumer, by trade description or otherwise, that such abstraction had taken place.—Mr. BURNS said in reply: The subject is one which must be considered in connexion with proposals for the amendment of the Sale of Food and Drugs Act.

Plague amongst Rats in East Anglia.

Mr. GEORGE ROBERTS asked the President of the Local Government Board whether he was yet in a position to state the results of investigations made into the existence of plague among rats in East Anglia, or did he contemplate presenting a report to Parliament thereon; and would he consider the advisability of continuing these examinations in the summer and autumn, as such periods were regarded as the most dangerous for the spread of plague infection.—Mr. BURNS answered: I am expecting to receive very shortly a report on the investigations referred to. Until the report is before me I am not able to say what steps should be taken with regard to its publication. The procedure to be adopted during the summer and autumn will be carefully considered by me.

Mortality of Poor-law Children.

Mr. WEDGWOOD asked the President of the Local Government Board, with reference to the mortality of children under five in Poor-law institutions, whether he had yet been able to obtain fuller statistics to supply the want noted by the Royal Commission; and further, what the result had been of Dr. Darwall Smith's inquiry as to the causes of the heavy mortality.—Mr. BURNS wrote in reply: I am obtaining some statistical information with reference to infant mortality in Poor-law institutions, but it is not yet complete. I understand that the results of Dr. Darwall Smith's investigations will not be ready for some time.

Deaths from Chicken-pox.

Mr. CRAWSHAY-WILLIAMS asked the President of the Local Government Board whether he would state the number of deaths of children under the age of 15 years who were certified to have died from chicken-pox in England in the years 1908 and 1909, and what was their vaccinal condition; whether it was still the view of the Registrar-General that chicken-pox was usually so trifling an ailment, and so rarely if ever fatal, that it might be assumed with much probability that the greater part of the 100 or so deaths that year after year are referred to this cause were in reality cases of small-pox, as stated in his 46th Report; and what was the reason for the omission of the reference to chicken-pox from the 72nd Annual Report of the Registrar-General, after a similar reference had appeared for so many years.—Mr. BURNS furnished the following written answer: The numbers of deaths certified as resulting from chicken-pox of children under 15 years of age in England and Wales were 93 in 1908 and 94 in 1909. The vaccinal condition of these children is not stated in the death returns. With regard to the last part of the question, it is true that the statement quoted was made in the report for the year 1883, but subsequent experience has not shown that there is any evidence that any considerable proportion of the recorded mortality from chicken-pox is really due to small-pox. Although chicken-pox in the vast majority of cases is a very mild disease, it is well known that severe cases occasionally occur which may be fatal.

A Case of Vaccination at Barnsley.

Sir JOSEPH WALTON asked the President of the Local Government Board whether he was aware that a public vaccinator of the Barnsley union attended at the house of Mrs. Haigh of Barnsley after she had legally made a statutory declaration of conscientious objection under the Vaccination Act, 1907, and vaccinated the child in respect to whom such declaration of objection was made; and what steps, if any, he proposed to take, not only with regard to the action of the public vaccinator in question, but also of that of the vaccination officer of the union, who had entered the name of the child on the list he sent to the doctor, although he had received the certificate of declaration from the child's mother.—Mr. BURNS (by written answer) replied: I have seen a newspaper account of this case, and the statement of facts given in the newspaper agrees generally with that in the question. It appears that the woman's husband had left her, but that this information was not given to the vaccination officer. When a husband and wife are living together the husband is the person entitled to make the declaration of conscientious objection. According to the newspaper account the woman stated at the meeting of the board of guardians when the case was considered that, whilst she believed in vaccination, she did not want the child vaccinated, as it might have interfered with her work, and also that she consented to have the child vaccinated. On the information at present before me it does not appear necessary to take any further steps in regard to the case.

MONDAY, MARCH 13TH.

The Midwives Act.

In reply to Dr. ADDISON, Mr. BURNS said: The Government is not without hope that it may be possible to introduce a Bill to amend the Midwives Act this session.

The Sanitary Conditions of Wye.

Dr. ADDISON asked the President of the Local Government Board whether he had received complaints from the inhabitants of Wye, Kent, as to the insanitary conditions prevailing there; whether the local authority was taking suitable and efficient measures to deal with the existing nuisances; and whether he would direct one of the medical officers of the Local Government Board personally to inspect the sanitary arrangements and report upon what measures were necessary to be taken in the interests of the public health.—Mr. BURNS replied: I have received complaints in regard to Oxenturn, Lane, and Wye, and I have directed one of the Board's inspectors to visit the locality and report to me on the matter.

Vaccination of Children.

Dr. HILLIER asked the President of the Local Government Board whether, in view of the recent outbreak of small-pox, and the continued increase in the numbers of children exempted from vaccination, he would give instructions to have issued with the vaccination notices a circular pointing out the value of vaccination as a means of preventing the contraction of small-pox.—Mr. BURNS said in reply: The suggestion made by the honourable member is not one which I am able to accept.

Dr. HILLIER: Is the right honourable gentleman aware that in some localities 50 per cent. of the children are exempt from vaccination?—Mr. BURNS: I am aware exemptions are increasing, but I am not aware that they are 50 per cent.

Dr. HILLIER: Does the right honourable gentleman intend to take steps to put a stop to this?

No reply was given.

Mr. WEDGWOOD asked the right honourable gentleman whether he could state the number of public vaccinators who had been appointed as medical inspectors for elementary schools under the Education (Administrative Provisions) Act by local education authorities; and whether the Local Government Board agreed that these two offices should be held by the same person.—Mr. BURNS answered: I cannot state the number of public vaccinators who have been appointed as medical inspectors of school children. The Local Government Board have stated that both they and the Board of Education consider that the office of medical inspector of school children may with advantage be combined with the office of medical officer of health in a country district, and that amongst the other public offices which a medical officer of health may be allowed to hold is that of public vaccinator.

Mr. RAMSAY MACDONALD asked the President of the Board of Education whether he was aware that the Education Committee of the London County Council had resolved to recommend such Council to rescind their resolution of April, 1906, with reference to the examination and vaccination of children, and that the Education Committee further advised the exclusion from the public elementary schools of those children who were unvaccinated; and whether he would take immediate steps to deal with this proposal.—Mr. RUNCIMAN said in reply: I have seen a newspaper report of the proceedings of the Education Committee, from which I understand that they are recommending that the resolution referred to should be rescinded. The report states that they also recommend that no examination of children, for the purpose of ascertaining which of them have been vaccinated, should be made without the written consent of the parents. I understand that the recommendation of the Education Committee has not yet been adopted by the Council. I can only deal with the matter if there is an infringement of the Code.

TUESDAY, MARCH 14TH.

The Dresden Hygiene Exhibition.

Sir HERBERT RAPHAEL asked the First Lord of the Admiralty whether his attention had been called to the fact that several of the medical officers of his department had resigned their membership of the British committee formed for the purpose of preparing a British exhibit at the International Hygiene Exhibition at Dresden, on learning of the decision of His Majesty's Government not to support this exhibition; and whether, in view of the recent expression of commendation addressed by the President of the Board of Trade in the name of the Government to the chairman of the committee, he would advise these gentlemen to join the committee again and assist in preparing a suitable exhibit in connexion with diving, naval hygiene, and other cognate matters.—Mr. MCKENNA replied: I am unaware whether naval medical officers have at any time taken part privately in the work of the committee. None have joined it officially. The Admiralty cannot undertake to send an exhibit, and I regret therefore that I cannot act on the suggestion contained in the second part of the question.

Mr. BYLES asked the President of the Board of Education whether he had had his attention directed to the fact that the subject of medical inspection of school children, and the treatment of children found defective at the inspection, would be illustrated and discussed at the forthcoming International Hygiene Exhibition at Dresden; and whether he proposed to prepare an exhibit and to send delegates to the associated congresses.—Mr. RUNCIMAN replied: I have heard that these subjects are to be dealt with. I cannot undertake to send an exhibit. I do not understand that the Board has been asked to send a delegate, but I shall, of course, be prepared to consider any invitation to do so.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLINGHAM, HENRY REGINALD, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health of Totnes, Devon.

BALFOUR, T. STEVENSON, M.D., C.M. Edin., has been appointed Medical Officer and Public Vaccinator for the No. 2 District of the Chard (Somerset) Union.

CARTER, H. H., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Northallerton District of the county of Yorks, North Riding.

EARL, GUY STANLEY, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Registrar and Anæsthetist to the South Devon and East Cornwall Hospital, Plymouth.

EVANS, WILLIAM HENRY, M.R.C.S., L.R.C.P. Edin., has been appointed Medical Officer for the Southleigh District by the Honiton (Devon) Board of Guardians.

FLETCHER, DUNCAN, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Inverness, Elgin, and Nairn, to be attached more particularly to the Skye District.

HOWARD, CHARLES REGINALD, M.D., B.C. Cantab, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Frome (Somerset) Rural District Council.

JOULE, JOHN, L.R.C.P. Irel., L.S.A., has been appointed District Medical Officer by the Warminster (Wilts) Board of Guardians.

LUCY, REGINALD HORACE, M.B., C.M. Edin., F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the South Devon and East Cornwall Hospital, Plymouth.

MOFFATT, C. W. P., M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed Superintendent Medical Officer to the Bury and District Joint Hospital Board.

ROBINSON, GERALD CHARLES FREDERICK, F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Surgeon to the South Devon and East Cornwall Hospital, Plymouth.

STEELE-PERKINS, DUNCOMBE STEELE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Farway and Northleigh Districts by the Honiton (Devon) Board of Guardians.

THOMSON, A. M., M.B., B.Ch., B.A.O.R.U.I., has been appointed Assistant House Surgeon to the West Kent General Hospital, Maidstone.

WILSON, N., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Sherborne District of the county of Dorset.

WOOD, WILLIAM, M.B. Aberd., has been appointed Resident Medical Officer at the Hospital for Women, Soho-square, W.

WOOLLCOMBE, WALTER LEY, F.R.C.S. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Consulting Surgeon to the St. Barnabas Hospital, Saltash, Cornwall.

WORTH, FRANCIS JAMES, M.D., B.S. Durh., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Basingstoke (Hampshire) Rural District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

BATH ROYAL UNITED HOSPITAL.—House Physician and House Surgeon. Salary each £80 per annum, with board, lodging, and washing.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.

BIRMINGHAM GENERAL HOSPITAL.—Surgical Casualty Officer. Salary £50 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician, also Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BOLTON INFIRMARY AND DISPENSARY.—Third House Surgeon. Salary £90 per annum, with apartments, board, and attendance.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £90 per annum, with rooms and attendance.

BURY, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.

BUXTON, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £116 per annum, with board, lodging, washing, &c.

CHESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with residence and maintenance.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and laundry.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons for six months. Salary in each case £50 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

EDINBANE, ISLE OF SKYE, GESTO HOSPITAL.—Resident Medical Officer. Salary £280 per annum, with furnished house, &c.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—Ten Clinical Assistants.

FIFE, COUNTY OF.—Assistant School Medical Officer. Salary at rate of £250 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Two House Physicians and Three House Surgeons for six months. Salary in each case at rate of £40 per annum, with board, lodging, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence.

HULL ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £80 per annum, with board and lodging.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL 49, Church-street, Kensington, W.—Vacancy on Honorary Medical Staff.

LEAMINGTON, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £65 per annum, with board, washing, and apartments.

LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, apartments, and washing.

LONDON FEVER HOSPITAL, Islington, N.—Assistant Physician.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried. Salary £90 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Honorary Surgeon

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80, with residence, board, and washing.

MANCHESTER SCHOOL FOR MOTHERS (ANCOATS BRANCH).—Honorary Medical Officer.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood.—Clinical Assistants for six months.

NEWCASTLE-ON-TYNE, HOSPITAL FOR DISEASES OF THE THROAT, NOSE, AND EAR.—Honorary Assistant Surgeon and Anæsthetist.

NEWCASTLE-UPON TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Bacteriology. Salary £200 per annum.

NEW HOSPITAL FOR WOMEN.—Female to Take Charge of Mechano-Therapeutic Department. Also Clinical Assistant.

NORTHAMPTON, NORTHAMPTONSHIRE SANATORIUM, Creaton.—Resident Medical Officer. Salary at rate of £200 per annum, with board, apartments, and laundry.

NOTTINGHAM, CITY OF, EDUCATION COMMITTEE.—Senior Medical Inspector Salary £300 per annum.

PETERBOROUGH INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Honorary Emergency Anæsthetist.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Resident Medical Officer. Salary £120 per annum, with board, residence, and laundry.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Morning House Anæsthetist. Salary £25 per annum.

ROYAL NAVAL MEDICAL SERVICE.—Twelve Commissions.

ST. MARY'S HOSPITAL, Paddington, W.—Assistant Ophthalmic Surgeon.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SUNDERLAND INFIRMARY.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum, with board, washing, and attendance.

THROAT HOSPITAL, Golden-square, W.—Honorary Assistant Surgeon.

TIVERTON INFIRMARY AND DISPENSARY.—House Surgeon and Dispenser. Salary £80 per annum, all found.

TRANSVAAL MINERS' PHTHISIS SANATORIUM, Springkell, Modderfontein, near Johannesburg.—Medical Superintendent. Salary £1000 per annum with furnished residence.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, &c.

WEST BROMWICH DISTRICT HOSPITAL.—Senior House Surgeon, unmarried. Salary £110 per annum, with board, residence, and washing.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum. Also Honorary Medical Officer in Charge of Electrical Department.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House Surgeon. Salary £100 per annum. Also Junior House Physician. Salary £75 per annum.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—Lectureship in Forensic Medicine.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Cranleigh, in the county of Surrey; at Wooburn, in the county of Bucks; at Tullaroan, in the county of Kilkenny; at Ballyragget, in the county of Kilkenny; and at Penkridge, in the county of Stafford.

Births, Marriages, and Deaths.

BIRTHS.

BARRETT.—On March 7th, at Rysseldene, Colwyn Bay, North Wales, the wife of W. Ernest Barrett, F.R.C.S., of a daughter.

BUCKLEY.—On March 13th, at The Ropewalk, Nottingham, the wife of Dr. J. C. Buckley, of a daughter.

CARRUTHERS.—On March 10th, 1911, at Moody Hall, Congleton, the wife of R. J. W. Carruthers, M.D., of a daughter.

HEDLEY.—On March 15th, 1911, at 11, John-street, Berkeley-square, W., the wife of John Prescott Hedley, M.A., M.B., M.C. Cantab., of a son

HODGSON.—On March 12th, at The Crescent, Salford, Lancs, the wife of Stanley Hodgson, M.D., B.S. Lond., &c., of a son.

MYLES.—On March 8th, at Clifton, Bristol, the wife of Staff-Surgeon T. W. Myles, R.N., of a daughter.

SMITH.—On March 11th, at 229, Balham High-road, S.W., the wife of Edwin Smith, M.D. Lond., Barrister-at-Law, of a daughter.

TALLENT.—On March 8th, at Walton Lodge, Chislehurst, the wife of J. H. Tallent, M.B. Cantab., M.R.C.S., of a son.

DEATHS.

BOSSON.—On March 11th, at Lanby Hall, Alford, Lincs, George Bosson M.R.C.P., aged 66 years.

GILLATT.—On March 8th, at Cairo, Captain W. Harold Gillatt, R.A.M.C.

GORDON.—On Feb. 28th, at his residence, Laurel Cottage, Dalwood Dorset, John Hurd Gordon, L.R.C.P., in his 51st year.

SAFFERY.—On March 12th, at Talfourd-road, Camberwell, S.E., Frank Golder Saffery, M.R.C.S., L.R.C.P Lond., in his 42nd year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

RATS AND THE PLAGUE: THE PROPOSED PORT OF LONDON BY-LAWS.

THERE have been issued in the *Gazette* the following by-laws proposed by the Port of London Authority "for the prevention of an outbreak of plague amongst rats at the docks":—

1. All rope and mooring tackle for securing any vessel either to the shore or to mooring buoys shall be fitted with such effective guards as will prevent access of rats from the vessel to the shore. For any breach of this by-law the master of the vessel shall be liable to a penalty not exceeding £5.

2. All possible means shall be adopted for catching and destroying rats during the stay of any vessel in dock. All empty cases and barrels shall be examined before being landed to ensure that no rats are contained therein. Any rats caught on board the vessel shall be killed, then placed in a bucket of strong disinfecting solution, and afterwards burnt in the vessel's furnace. No rats, alive or dead, shall be removed from the vessel. For any breach of this by-law the master of the vessel shall be liable to a penalty not exceeding £5.

3. When the discharge of cargo or the landing or embarking of passengers is not proceeding one gangway only shall be permitted to afford means of communication between any vessel and the shore. The end of the gangway near the vessel shall be whitened for a length of 10 ft. For any breach of this by-law the master of the vessel shall be liable to a penalty not exceeding £5.

After March 13th, for one month, any person may make, in writing to the Board of Trade, any representations respecting these proposals.

THE LATE DR. PIFFARD OF NEW YORK.

Dr. George Henry Fox of New York, in the *Journal of Cutaneous Diseases* for February, gives some reminiscences of the well-known dermatologist, the late Dr. Henry Grainger Piffard, in which he tells two amusing stories about him. Dr. Piffard began to collect foreign works on skin diseases. He was a fair German and a better French scholar, but knew very little of Italian. To supply this deficiency he at once subscribed for one or two Italian medical journals, selected a teacher, and attacked the language with his customary vigour. Happening to run across an advertisement of some book, entitled something like "*Trattato della Pelle et cetera*," he gave his bookdealer an order for it. The bookdealer, in a polite note, informed him that this was an expensive work, published by the Italian Government, and that it would take several weeks to import it. Piffard replied in language more vigorous than polite—"Expense be damned"; when he wanted a book he expected his dealer not to talk about it but to get it. In about two months, during which time his knowledge of Italian had rapidly increased, the book arrived and with it a bill for about £12. To his surprise and dismay he discovered at first glance that it was not a strictly dermatological work, but an elegantly bound and elaborate treatise on the tanning of hides.

The other story illustrates well the fact that *non omnia possumus omnes*. Dr. Piffard was a most versatile man, and in his ample affections for hobbies embraced many mistresses, including microscopy, medical politics, botany, canoeing, photography, bicycling, fishing, rifle shooting, mycology, radiotherapy, Esperanto, &c., with all of which he acquired some appreciable proficiency. The only thing he ever attacked to meet with signal defeat was music. When a young man Dr. Piffard was seized by the then prevailing craze to play the banjo. Dobson or some other professor was advertising proficiency in six easy lessons. Piffard, entirely unaware of the important fact that he had little or no music in his soul, decided to court the "heavenly maid" in her guise of sheepskin and catgut. He called on the professor, bought an expensive instrument, took his first lesson, and started home with high hopes and a small music-book. The latter he read carefully, and doubtless committed to memory. The position of his fingers on the frets, as shown him by the professor, he practised through many spare hours for a week, and then went proudly to his second lesson, eager to show how much he had accomplished. The professor listened to his pupil's performance with an expression of sober surprise. Then seizing the banjo he strummed it for a few minutes and inquired: "Doctor, do you know what tune I am playing?" "No, I don't," said Piffard with perfect truthfulness. "Well, Doctor, there is no use in going any further. I just played 'Carry me back to Ole Virginny,' the tune you have been practising for a week—and will never learn. Now, I'll buy your banjo back for half price and charge you nothing for the lessons, provided you will never tell anybody that you were a pupil of mine."

ENAMELLED STEEL WARE AND APPENDICITIS.

WE have been requested by Messrs. Oscar Moenich and Co., Limited, to publish the following note upon an action brought by Messrs. Baumann Brothers, manufacturers of "Lion and Mug" brand enamelled steel ware, in the Fourth Chamber of the Commercial Court at Leipzig on Dec. 22nd, 1910. The note says that an injunction was granted against a defendant—subject to a penalty of £50 for each contravention—to repeat or circulate the statement that splinters of enamel were the cause of appendicitis or other intestinal disorders. The defendant was also condemned to pay the plaintiff's costs, and the plaintiff was authorised to publish the court's decision within one month in an issue of the *Leipziger Neuesten Nachrichten* at the expense of the defendant.

Admirer.—We fear we can give no advice in the circumstances, which clearly are a matter for our correspondent's own discretion. A solicitor will advise him whether legal penalties would follow his suggested action; to us it certainly seems that they might. For the rest he must consider whether the action of his employer in breaking the understood relations between professional men, as he alleges to have been the case, justifies the employed in going back on his word.

Inquirer.—The general answer is that the practitioner cannot be bound in such a way. Obligations, however, may arise which he would find it morally and practically unable to neglect. Will our correspondent (of course in confidence) state any particular case in which he is interested?

S. of Pendleton.—If the writer desires comment on his communication he must furnish us with his name and address for our information.

M.D., D.P.H. Camb.—We will try to obtain further information for our correspondent.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March, and April, 1911:—

March 23rd (Paris).—First Congress of French Medical Journalists.
" 28th–April 25th (Tunis).—Exhibition of Hygiene.
April 4th–7th (London).—Fourth Annual Nursing and Midwifery Conference and Exhibition.
" 18th–20th (Paris).—Third Congress of Physiotherapy of French-speaking Physicians.
" 18th (Berlin).—Tenth Congress of the German Orthopædic Surgery Society.
" 19th–22nd (Berlin).—German Surgical Congress. (Fortieth Annual Meeting.)
" 19th–22nd (Wiesbaden).—Twenty-eighth German Congress of Internal Medicine.
" 20th–22nd (Groningen).—Thirteenth Nature and Medical Congress.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 15th, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 9	29·88	S.W.	0·12	82	49	37	42	42	Raining
" 10	30·12	W.	0·04	89	51	35	37	38	Fine
" 11	29·88	S.W.	0·06	53	47	38	41	42	Raining
" 12	29·89	W.	...	67	45	35	38	40	Overcast
" 13	29·39	N.	0·47	83	44	34	34	37	Cloudy
" 14	29·63	N.W.	0·09	84	45	34	34	36	Cloudy
" 15	29·45	N.W.	...	77	38	35	35	37	Snowing

The following journals, magazines, &c., have been received:—Archives of the Roentgen Ray, Journal of the Royal Institute of Public Health, Therapie der Gegenwart, Archives Internationales de Neurologie, Prince Alfred Hospital Gazette (Sydney), Bulletins et Mémoires de la Société de Radiologie Médicale de Paris, St. Paul Medical Journal, Military Surgeon, American Journal of Orthopedic Surgery, Hygiène de la Viande et du Lait, Revue de Chirurgie, Revue de Médecine, Annales des Maladies des Organes Génito-Urinaires, Midland Medical Journal, Journal of the Royal Army Medical Corps, International Journal of Surgery, Excelsior, Sunday Guardian, American Review of Reviews, Cleveland Medical Journal, Albany

Medical Annals, Monthly Cyclopædia and Medical Bulletin, Detroit Medical Journal, Archives of Pediatrics, Review of Neurology and Psychiatry, Proceedings of the Canal Zone Medical Association, Polyclinic, Medical Review, Knowledge, School Hygiene, The Photographic Monthly, Bio-Chemical Journal, British Journal of Dermatology.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—H. Charles Cameron, H. H. Dale): at 4.30 P.M.

Papers:

Dr. W. Langdon Brown: An Enquiry into the Value of Rectal Feeding.

Dr. D. V. Cow: The Reaction of Arteries to Certain Drugs.

PATHOLOGICAL SECTION (Hon. Secretaries—Charles Bolton, J. C. G. Ledingham): at 8.30 P.M.

Mr. C. Gordon Watson: Case of Resection of Cæcum and Ascending Colon showing Chronic Hypertrophy of the Mucous Membrane with Stenosis Simulating Cancer.

Dr. Coats and Dr. Forbes: The Relation of the Meningococcus to Pseudoglioma.

Dr. Morgan: The Gall-bladder Lesion in the Typhoid-carrier Rabbit.

Dr. Andrewes: The Inhibition of Pigment production in B. Prodigiosus by B. Fæcalis Alkaligenes.

Dr. H. R. Dean: On the Relation of Specific Precipitation to Complement-fixation.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—J. P. Lockhart Mummery, T. R. Whipham, G. S. Haynes) at 11, Chandos-street, W.: at 4.30 P.M.

Cases:

Dr. Langmead: (1) Achondroplasia; (2) Myopathy (Landouzy-Déjerine variety).

Mr. R. G. Hann: Multiple Exostoses.

Dr. J. D. Rolleston: Inherited Syphilis and "Blue Sclerotics."

Papers:

Dr. David Forsyth: The History of Infant Feeding from Elizabethan Days.

Dr. Milne: A Plea for the Home Treatment and Prevention of Measles.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Paper:

Dr. W. H. Hamer: Typhoid Carriers and Contact Infection: Some Difficulties Suggested by Study of Recent Investigations carried out on "Living Lines."

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Prof. J. A. Fleming: Applications of Electric Heating. (Cantor Lecture IV.)

CHELSEA CLINICAL SOCIETY, Chelsea Dispensary, Manor-street, King's-road, S.W.

TUESDAY.—8.30 P.M., Annual Clinical Debate on the Treatment of Colitis (opened by Dr. J. W. Eyre on Some Points in the Bacteriology of Colitis and its Treatment by Bacterial Vaccines, and Mr. P. L. Mummery on the Surgical Treatment of Colitis). Followed by a General Discussion. Open to all members of the Medical Profession.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY.—8.30 P.M., Mr. H. W. Gadd: How Far can the Abuse of Drugs be Prevented by Law?—Dr. Tunnicliffe: Patent Medicines.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Dr. D. Windle: The Respiratory Relationships of Pulsus Alternans.—Mr. R. Warren: Punctured Wounds of the Heart.

CHILD STUDY SOCIETY, LONDON, 90, Buckingham-Palace-road, S.W.

THURSDAY.—6.30 P.M., Annual General Meeting. 7.30 P.M., Mr. W. H. S. Garnett: Educational Possibilities of the Boy Scout Movement.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY.—5 P.M., Dr. A. F. Hertz: Sensibility of the Alimentary Canal in Health and Disease (Goulstonian Lecture).

THURSDAY.—5 P.M., Dr. J. M. Bruce: Clinical Study of Cardiovascular Regeneration (Lumleian Lecture).

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Mr. J. E. R. MacDonagh: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Some Common Skin Diseases in Children and their Treatment.

TUESDAY.—4 P.M., Dr. L. Smith: Clinique (Medical). 5.15 P.M., Lecture:—Dr. S. R. Wells: Angina Pectoris.

WEDNESDAY.—4 P.M., Mr. G. E. Waugh: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. H. Savage: Morbid Mental Growths.

THURSDAY.—4 P.M., Dr. E. Cautley: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. E. Herman: Endometritis.

FRIDAY.—4 P.M., Mr. S. R. Scott: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. Dr. Simson: Diseases of Women. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Minor Surgery.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M.: Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: Retention of Urine.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Mr. Bidwell: Minor Surgery.

THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Minor Surgery.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

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MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir Dyce Duckworth: Early Manifestations of the Gouty Habit.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4.30 P.M., Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir William Bennett.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic:—10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. F. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

TUESDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Knee Joint, Ankle Joint, and Tarsus. (Special Post-Graduate Course.)

THURSDAY.—4 P.M., Dr. Still: Some Affections of the Newborn.

FRIDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Inflammations of the Elbow Joint, Pulled Elbow, Bicipital Bursitis. (Special Post-Graduate Course.)

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

THURSDAY.—3 P.M., Prof. A. Keith: Giants and Pygmies. (Lecture II.)

FRIDAY.—9 P.M., Sir David Gill: The Sidereal Universe.

SATURDAY.—3 P.M., Prof. Sir J. J. Thomson: Radiant Energy and Matter. (Lecture IV.)

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY.—3.30 P.M., Dr. P. Jakins: A Special Clinical Demonstration of Interesting Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Mr. L. Paton: Eye Symptoms in Disseminated Sclerosis.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Holmes: Cerebellar Disease.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Treatment (Therapeutical).

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Mr. W. R. Douglas: Some Chronic Affections of Joints. (Post-Graduate Clinic).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (22nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (23rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (25th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

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